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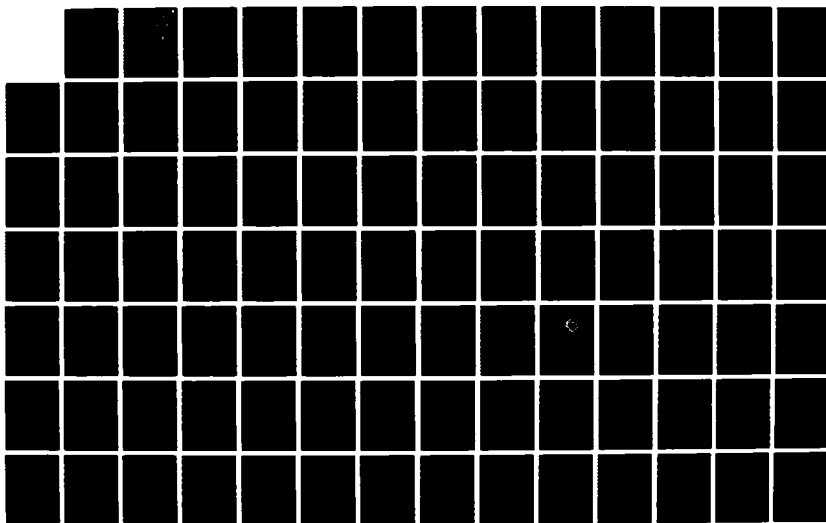
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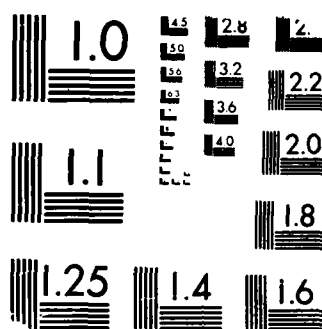
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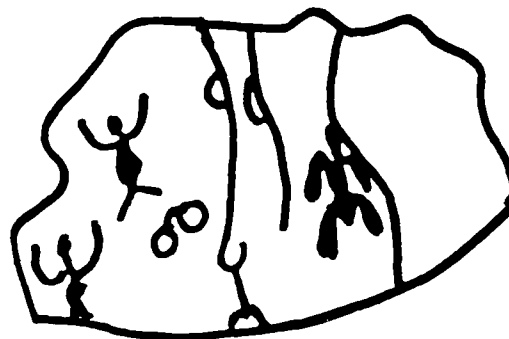
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A CULTURAL RESOURCES SITE INVENTORY AT PAINTED ROCK RESERVOIR MARICOPA COUNTY, ARIZONA

Kathleen Bergin and J. Simon Bruder

Prepared for:
U.S. Army Corps of Engineers
Los Angeles District

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MARICOPA COUNTY, ARIZONA

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ABSTRACT

The results of archaeological investigations at 36 sites in the Painted Rock Reservoir, Maricopa County, Arizona are reported. In-depth descriptions of 32 properties are provided as well as the results of laboratory analyses of a selected sample of ceramic, lithic, shell, and turquoise artifacts. Identified property types include rock feature sites, petroglyph sites, campsites, trails, ceramic and lithic scatters, village complexes, ground stone and chipped stone processing sites, and a lithic quarry. Hohokam and Patayan site affiliations are common, and historical and modern Papago materials are present. The extent to which Archaic occupations are present is difficult to determine. Two historical Euroamerican sites are present. This study was undertaken to complete identification and documentation activities of a previous sample (10%) survey of the reservoir (Teague and Baldwin 1978). Preliminary evaluations of the information potential of the properties and management recommendations for them are provided.



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1.0 INTRODUCTION

The following report presents the results of archaeological investigations intended to complete the Phase I inventory of archaeological and historical properties begun in 1978 by the Arizona State Museum (ASM) to evaluate cultural resources potentially affected by modifications of flood release schedules at Painted Rock Dam. The project was undertaken at the request of the Corps of Engineers within an 87.5 square mile study area located along the Gila River east of Painted Rock Dam near Gila Bend in Maricopa County, Arizona (Figure 1). Authority to conduct archaeological investigations on federal lands was provided by Cultural Resource Use Permit No. A-22107 issued by the Arizona State Office of the Bureau of Land Management.

The primary purpose of the project was to relocate and record 30 sites identified in 1978, to analyze artifacts collected from them, and to prepare management recommendations concerning the reservoir area based on these findings. Of the original 30 sites, 16 were successfully relocated and recorded; 12 were found but had been badly disturbed or completely destroyed by the effects of inundation; and 2 were not revisited due to logistic difficulties. In addition, six new sites were located and recorded. The majority of sites recorded are identifiable to late prehistoric or protohistoric times. Hohokam and Patayan sites are common in the area, but archaic sites are not. The lack of recognition for archaic sites may be due to the content of the sites -- diagnostic artifacts are rare -- and the nature of the current survey -- relocation of previously identified resources.

1.1 Regional Prehistory

A synopsis of the prehistory of southwestern Arizona was presented in an earlier, related study (Bruder and Spain 1986) and, therefore, will not be repeated here except for a brief summary. McGuire and Schiffer (1982) may also be consulted for an in-depth synthesis.

The earliest cultural group believed to have occupied southwest Arizona is referred to as the Malpais (Hayden 1976). Hayden believes that the Malpais complex may pre-date Clovis (pre-10,000 B.C.), and he characterizes the complex as a stone tool and worked shell assemblage sometimes associated with "sleeping circles," trails, "shrines," and intaglios. Following Malpais in the temporal sequence is San Diequito (SD), a Paleo-Indian complex first defined by Rogers (1929). Only SD-I (the complex has three divisions) is expected in the Gila Bend area. It may be roughly contemporaneous with Clovis and is characterized by a varied lithic assemblage as described by Warren (1967) and Rogers (1939, 1958).

The Archaic sequence in southwest Arizona is termed Amargosa and is divided into three temporal phases (Rogers 1939, 1958, 1966; Hayden 1976). This sequence may have begun around 7500 B.C. Its termination has been variously dated, Hayden (1976) suggesting A.D. 300, while Rosenthal et al. (1978) feel it may have extended to as late as A.D. 800, at least in the extreme western portion of the region. Features associated with Amargosan presence include camp clearings, zoomorphic intaglios, trails, and shrines. Amargosan phases are distinguished on the basis of changing

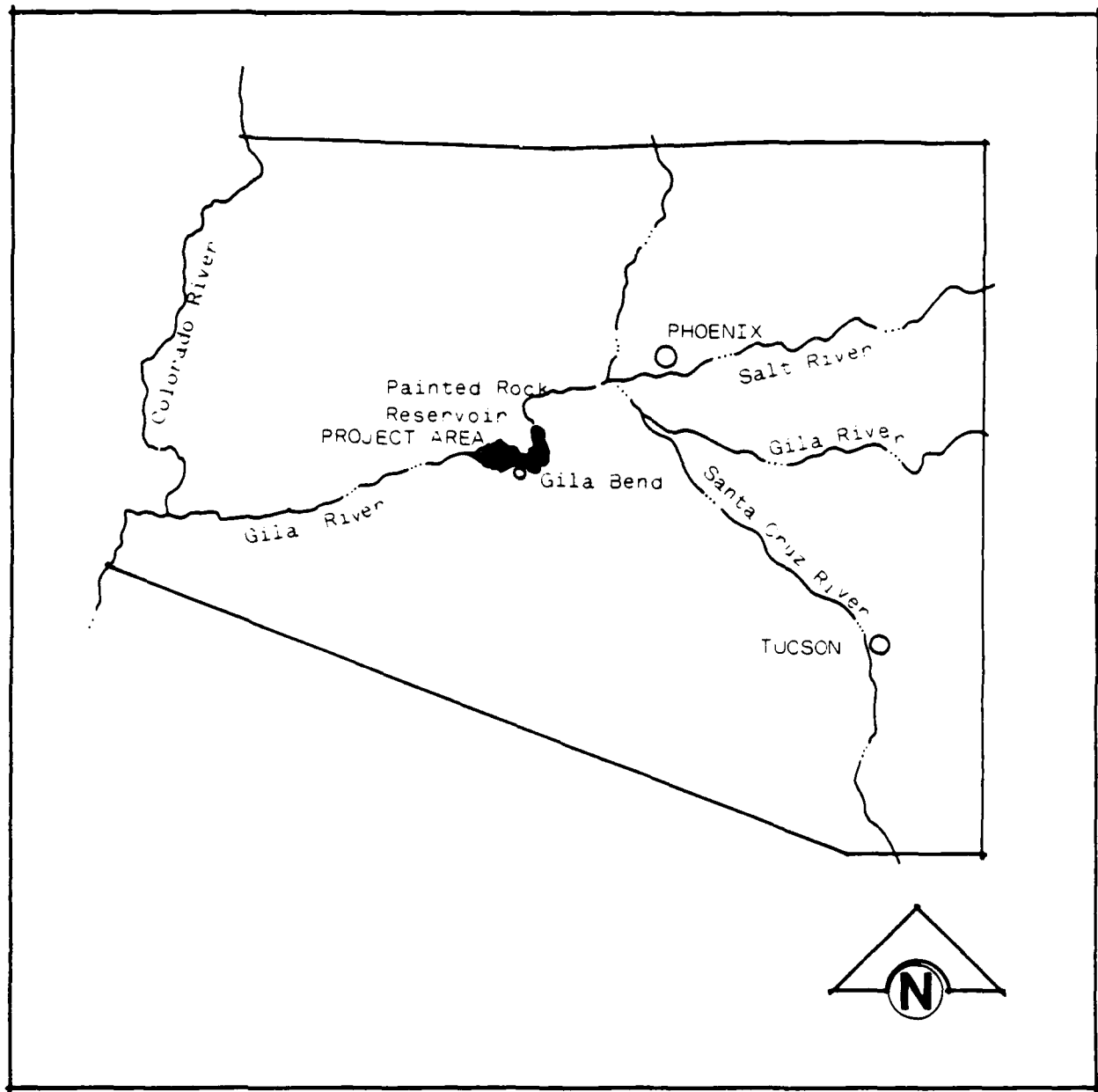


Figure 1. Project area location in southern Arizona .

projectile point styles, and by an increasing incidence of ground stone during Phase III. Horseshoe-shaped windbreaks and plain brownware ceramics also characterize the end of the sequence.

Following the Archaic period, groups from two major ceramic-making traditions occupied parts of southwest Arizona. These are the Hohokam and the Patayan. The Hohokam are characterized by a sedentary lifestyle and a wide variety of agricultural practices, the most notable of which is canal irrigation. The Hohokam sequence is divided into four periods (Pioneer, Colonial, Sedentary, and Classic), and further subdivided into a number of phases. Distinctions between these are based on decorated ceramics, architectural styles, mortuary practices, and so forth. The sequence may date back as early as 300 B.C., and have lasted until A.D. 1450 (Haury 1976). Shorter chronologies are also proposed (e.g., Schiffer 1982).

Patayan refers to a very poorly understood cultural entity also identified by some investigators as Yuman or Hakatayan (for a discussion of this issue, see McGuire 1982b:216-222). Most information concerning the Patayan culture comes from survey data and surface collections as only a very few sites have been excavated. The Patayan sequence is divided into three phases beginning around A.D. 700 and continuing well into the 1800s or even 1900s.

It is unclear precisely how the protohistoric and historic Patayan sequence equates with ethnohistorically reported aboriginal inhabitants of southwest Arizona. These include Piman speakers in the east half of the region, with Hokan and Shoshonean-speakers to the west (McGuire 1982a: 57-99).

1.2 Project Background

A number of surveys conducted in southwest Arizona have included portions of the Painted Rock area. The earliest of these were extremely extensive reconnaissance surveys which made no attempt to accomplish "complete" inventories. These are summarized by Vogler (1976) and his discussion is briefly reiterated here.

Gladwin and Gladwin (1930) surveyed an area with a southern boundary extending from Gila Bend to Yuma in their attempt to define the western boundary of the Hohokam, then termed the "Red-on-Buff Culture." The Gladwins found what appeared to be an interface between Hohokam and Yuman (Patayan) remains in the area, although they did not feel the two were contemporaneous. An earlier survey by the San Diego Museum of Man also considered the lower Gila, but this material is unpublished. Various later investigators have, however, used these data (e.g., Schroeder 1952; Waters 1982), especially in attempts to deal with Patayan ceramic types.

In 1951 the National Park Service surveyed the lower Gila River including the Painted Rock area (Schroeder 1952). Schroeder's report contains a detailed consideration of the Lower Colorado Buffware ceramic complex commonly associated with the Patayan culture as mentioned above. This survey also was the basis on which it was determined that an intensive survey of the Painted Rock area should be made prior to dam construction. That survey, undertaken in 1957 (Schroeder 1961), located 29 Hohokam and Hakatayan (Patayan) sites in the reservoir area.

Fifteen of these sites were subsequently excavated or otherwise investigated for the National Park Service by the ASM between 1958 and 1961 (Wasley 1960; Wasley and Johnson 1965). One additional survey along the lower Gila River also was undertaken for the National Park Service in 1964 (Vivian 1965). Vivian's survey covered the area from Painted Rock Dam west almost to Yuma and located 85 sites (Anglo, Papago, Yavapai, historic and prehistoric "Yuman", and Hohokam). Also, excavations at the Fortified Hill site located very near the reservoir area were reported by Greenleaf (1975).

In the mid-1970s the Corps of Engineers, as the Federal agency legally responsible for the Painted Rock Reservoir (the reservoir), initiated further studies in the reservoir area because of anticipated alterations of the reservoir release schedule recognized to have the potential to adversely affect cultural resources. As a result, the ASM was contracted to prepare a preliminary evaluation of the area with attendant management recommendations (Vogler 1976). Vogler's report contains a detailed consideration of the Corps' legal responsibilities concerning cultural resources in the reservoir area. This subject is explored further in Section 4.2 of this report.

Vogler noted that because of new laws (especially Executive Order 11593), the changing nature of both cultural resource management and archaeological research requirements, and the proposed modification to the reservoir release schedule, it would be necessary for the Corps to sponsor additional work in the reservoir area in order to comply with Public Law 93-291. Vogler further recommended that, "... prior to the initiation of a total survey of the area, a preliminary reconnaissance be carried out involving the intensive survey of selected units ... [to] serve as a planning and research tool, the primary function of which is to provide information for the preparation of a research design." (Vogler 1976:38.) This sample survey was to be Phase I, with Phase II envisioned as a problem oriented survey of the entire reservoir area.

In 1978, the ASM began Phase I which involved a pilot study of the entire reservoir area (Teague and Baldwin 1978; Teague 1981). An intensive, ten percent, environmentally stratified random sample of approximately 41,000 acres was surveyed at that time. The area was divided into four environmentally distinct zones based on vegetation, physiography, and hydrology: Zone 1, floodplain and terrace desert scrub and terrace creosote bush communities south of the Gila River; Zone 2, terrace creosote bush communities north of the Gila River; Zone 3, bajada areas; and Zone 4, crop land and inundated areas.

Teague and Baldwin's survey (1978) located 28 prehistoric and two historic sites (PRS-1 through PRS-30) of which 22 were newly discovered (eight having been previously recorded). The two historic sites (PRS-7 and PRS-11) are probably Anglo, one being a well and the other a mineshaft, respectively. The prehistoric sites include 10 sherd and lithic scatters (two of which may be habitation sites), 4 lithic scatters (including possible quarry workshops), 3 habitation sites, 1 rock art site, and 10 rock feature sites. In addition to the Anglo remains, potential cultural affiliations for these sites include Archaic, Hohokam, Yuman (Patayan), and Papago. Some sites appear to contain multiple cultural components. At others, cultural affiliation is extremely uncertain.

Based on their findings, Teague and Baldwin found that topography was the most useful predictor of site location, probably because it affects and reflects a wide range of environmental variables. Only isolated artifacts were found in Zone 3, the bajada area. In Zone 4 (floodplain/crop land) approximately 0-5 sites (sherd and lithic scatters) per square mile are projected. The highest site densities are projected for the terraces (Zones 2 and 3) approximately 3-18 sites per square mile. Sites on terraces north of the river are characterized by lithic scatters and rock features. Additionally, the large, probable villages and also some sherd and lithic scatters are located on the terraces.

Teague and Baldwin compared their findings with earlier settlement data from the area (e.g., Schroeder and Ezell 1957; Wasley and Johnson 1965). They noted general agreement, but outlined two major differences. First, the rock feature sites from Zone 2 had not been reported previously. Second, earlier work found a higher percentage of sites in Zone 4. Probably the earlier data are more accurate in this regard as modern cultivation undoubtedly obscures site indications.

Time and monetary constraints precluded the completion of certain aspects of Phase I by Teague and Baldwin, especially the detailed field recording of the 30 sites located by the sample survey and analysis of surface artifacts recovered from them. These are the primary goals of the present project.

It can be seen from the foregoing discussion, that cultural resource investigations in the Painted Rock area represent an evolutionary process which, from a management standpoint, presents a number of difficulties. The reservoir area is very large. Cultural resources are numerous and varied. The region's prehistory is, at best, poorly understood, and ideas within the archaeological discipline concerning what constitutes adequate research have undergone rapid change during the 30 years in which the reservoir area has been seriously investigated.

A well thought out research design clearly is needed prior to attempting to mitigate the adverse effects of inundation by the reservoir. The preliminary sample survey data gathered by Phase I are a necessary first step in the formulation of such a research design. But, unfortunately, in this case, external demands for changes in the reservoir release schedule could not wait for completion of Phase I, much less any subsequent mitigation efforts.

In fact, since 1978, the reservoir has several times approached its ultimate high water line at 661 feet. Maximum pool height to date is 647.8 feet recorded in March, 1980. As a result, the Corps has initiated several studies aimed at evaluating the effects of inundation on archaeological resources within the reservoir (Phillips and Rozen 1982; Bruder and Spain 1986). These studies show, not too surprisingly, that inundation definitely can have adverse effects on archaeological remains, especially where they are located on non-level ground or where high water stands with associated beach line have occurred. The 640-acre study area chosen for inundation monitoring lies near the edge of the reservoir. Thus, inundation effects within the lower lying parts of the basin have not been evaluated. Although such evaluation was not originally defined as part of the present study, we include a discussion in Section 4.2.

2.0 RESEARCH OBJECTIVES

The main goal of this project is to complete the Phase I sample inventory, initiated by Teague and Baldwin (1978), of sites potentially subject to inundation damage as a result of changes in flood release schedules which began in the late 1970s. Specifically, the Corps requested that we 1) relocate and record the 30 sites originally found by the sample survey and have ASM site numbers assigned to them, 2) analyze existing artifacts and records stored at the ASM, 3) prepare this final report and include in it significance evaluations concerning the sites and also the area as a whole, and 4) curate artifact collections and project records at the ASM.

Site recording and artifact analysis were planned following recommendations made by Teague and Baldwin (1978:57) at the conclusion of the first stage of Phase I, and also as a follow up to several research questions raised by the two subsequent inundation monitoring projects (Phillips and Rozen 1982; Bruder and Spain 1986). We were unable to address all of these aims because of damage to some of the sites and/or because of logistic difficulties posed by the dense tamarisk "jungle" which has developed in the reservoir area. However, each of our initial research questions will be reviewed here to acquaint the reader with our original research concerns.

Teague and Baldwin (1978:57) made several recommendations based on their findings. They note that it will be extremely useful to determine cultural and chronological placement of known sites so that "changing patterns of site distribution can be defined and possible contemporaneity can be determined." They suggest analysis of collections made during their survey as a first step toward this end. They further stress the need for a better definition of "variability in functional attributes and in the internal organization of sites." Detailed site recording, systematic measures of artifact distributions and densities, and mapping will begin to provide these data.

Ten of the sites slated for recording during this project are identified by Teague and Baldwin (1978) as "rock circle-alignment" sites. Work by Phillips and Rozen (1982) and Bruder and Spain (1986) has characterized sites of this type in considerable detail. We now know that they can consist of rock circles, piles, linear alignments, complex geometrics, and combinations of all of these. Some of the more substantial enclosures clearly are structures. Bruder and Spain (1986) also determined through informant interviews that at least some (though not all) of the rock features at site PRS-16 (AZ T:13:22 ASM, Rock City) were made by children during the 1950s.

In addition to the need to determine the function and cultural affiliation of the rock feature sites, obviously it is necessary to factor out modern features from prehistoric ones. Bruder and Spain (1986) suggest that comparison of features from Rock City with those at rock feature sites located at some distance from modern settlements (i.e., not readily accessible to modern children) may be useful. Such comparisons were attempted during the present project.

Bruder and Spain (1986) also report on evidence for extensive ground stone manufacturing activities at Zone 2 sites. During the current project, the lithic scatter sites were examined for additional evidence of this important, but often unrecognized, prehistoric activity.

Finally, recent investigations have hinted at possible Archaic (or older) remains in the Gila Bend/reservoir area. Teague and Baldwin (1978) and Phillips and Rozen (1982) both suggest that certain sites may be Archaic in age. Bruder and Spain (1986) describe heavily patinated lithics identified and attributed by Julian Hayden to the even earlier Malpais and San Dieguito I complexes. Artifacts from the possible Archaic sites identified by Teague and Baldwin need to be evaluated in terms of degree of patination in this regard. Observations concerning presence/absence of caliche on rock features also were planned as part of this study. Although it is not known how long caliche lasts after having been exposed on the surface in this area, in general, features lacking any caliche traces are more likely to be found at "older" sites.

To briefly summarize, potential research concerns which we attempted to address during this project are as follows:

- 1) Cultural and chronological placement of all known sites should be "firmed up" where possible in order to better understand settlement patterning in the Gila Bend/reservoir area.
- 2) Comparisons of rock features from Rock City with those from other such sites should help in determining which features are most likely to be prehistoric.
- 3) Lithic scatters should be more definitively characterized especially so that ground stone manufacturing evidence can be distinguished from chipped stone production activities.
- 4) Heavily patinated lithics and rock features lacking any surface caliche should be searched for and recorded in order to more firmly establish the antiquity of Teague and Baldwin's possible "Archaic" sites.

In addition to research objectives, several management concerns also are addressed. As discussed in Section 1.2, we found that a number of sites had been badly damaged by inundation. Therefore, a systematic evaluation of these effects was undertaken. The second management goal was to formulate recommendations concerning potential eligibility of sites or the entire reservoir area for listing in the National Register of Historic Places. Finally, general management recommendations for future work in the reservoir are presented.

3.0 RESEARCH STRATEGIES AND RESULTS

3.1 Fieldwork

Fieldwork was conducted in a six-day field session from 26 July - 31 July 1986. A six-person team subdivided into two three-person crews accomplished the work. Primary goals included site relocation and the recording of critical information on site size, boundaries, the range and frequency of data categories, chronology, cultural affiliation, and internal complexity. In addition, semi-permanent datums were established at the sites. These consist of hollow aluminum rods about 18 inches long that were tagged with the temporary site number and the date.

During the course of the fieldwork 28 of the original 30 site locations were revisited. In 16 of the 28 locations, cultural material is still present, although in many instances the site has been impacted through inundation or cultivation. In the remaining 12 locations no site is visible through surface observation, chiefly as the result of inundation and the growth of a dense tamarisk woodland. In addition to the assessment of these 28 sites, six newly discovered sites were recorded. Detailed site descriptions are presented below, and a summary and synthesis of the field and laboratory findings are presented in Section 4.0.

A key element of the recording process was the evaluation of surface artifact densities within each site or apparent site component (locus or concentration). Artifact density estimation was accomplished by counting the total number of artifacts in a measured area and then dividing this frequency by the area. Artifact densities are expressed as number of items per 1 m² of area. Small concentrations were counted in their entirety, but larger loci were sampled. For those sites or site areas with relatively homogeneous frequencies of artifacts, a single 1 m wide transect through the site was counted. The site descriptions provide more detailed information on the size and location of the density samples.

The site areas documented in the following site descriptions were based on the geometric shape of the site and the area formula for such a shape. Simple lengthXwidth approximations were not used because these consistently overestimate the area of a site.

In the following site descriptions the term greenstone has been used to classify some of the lithic raw materials used for chipped stone tool production. The earlier site records most often labeled the raw materials as basalt. The toolstone is actually a metamorphosed form of basalt more aptly termed metabasalt or greenstone. Greenstone is a generic term used for altered basic (as opposed to acid rocks such as granite or rhyolite) igneous rocks, and includes felsites, basalts, and other rock types. To provide continuity with the earlier work we have listed the black raw materials as basalt and then qualified them to greenstone parenthetically. The fracture is conchoidal, not platy, and flake terminations are usually abrupt, not feathered.

3.1.1 Site PRS-1 (AZ Z:2:12)

Site PRS-1 is a multicomponent site situated on the Gila Bend Indian Reservation (Figure 3). Historic era artifacts are present together with Hohokam (Sedentary period) and Papago materials; however, discrete cultural components have been identified. Situated at an approximate elevation of 650 feet, the site lies on a shallow terrace just south of the floodplain on the southern side of the Gila River. Site PRS-2 is on the same terrace approximately 500 m to the east. The site is situated in the desert scrub biotic community, and creosote, saltbush, tamarisk, and mesquite can be found on-site. Immediately to the north the floodplain is overgrown with tamarisk; a developed road bounds the site on the south.

Site PRS-1 is a complex resource distributed over an approximate 220X80 m area with the long axis running E-W. Within the 19,000 m² site area, three main cultural components and nine artifact concentrations have been identified. The site is bisected into eastern and western portions by a north-south road that curves to the west just north of the site. East of the road lies modern and historic material such as purple glass fragments, metal items, crockery fragments and other debris, and a corral. Also present are concentrations of prehistoric material (Concentrations C, D, E, F, and G) amid a sparse scatter of cultural material. Greater densities of cultural material are present west of the dirt road where four concentrations of prehistoric materials occur (Concentrations A, B, H, and I) together with modern or submodern structures including a pump house, water tank, concrete tank, and a fallen windmill. The site datum was placed northwest of the concrete tank. A very light density artifact scatter continues to the west beyond Concentrations A, H, and I.

As originally recorded by Teague and Baldwin (1978:28), the site was described as encompassing a 100X100 m area that was disturbed by corral construction and related activities. They reported that "historic Papago redwares were found associated with buffware sherds of the Sedentary period Hohokam ... and a mound (probably natural) ... and possible rock alignment [were] noted" (Teague and Baldwin 1978:28). A dirt road was reported as transecting the western portion of the site, and chipped stone was observed as comprising approximately 50% of the artifact assemblage. The current site documentation project has enlarged the site area to include the artifact concentrations west of the dirt road, which previously had not been discovered. No rock alignment was observed, and ceramics have a higher frequency than lithics in the artifact assemblage. The cultural or natural origin of the mound(s) has not been determined, but the presence of what appears to be "habitation trash" in the western portion of the site suggests that structures may well be present.

To facilitate site recording and to evaluate artifact density, the prehistoric elements of site PRS-1 were divided into nine concentrations and four areas. The "concentrations" are localized artifact distributions of notably high density, while the "areas" define large portions of the site surface (excluding the concentrations) that exhibit a generally homogeneously distributed low density artifact scatter. The areas are bounded by natural features such as the terrace edge or washes and by modern man-made features such as roads or the corral.

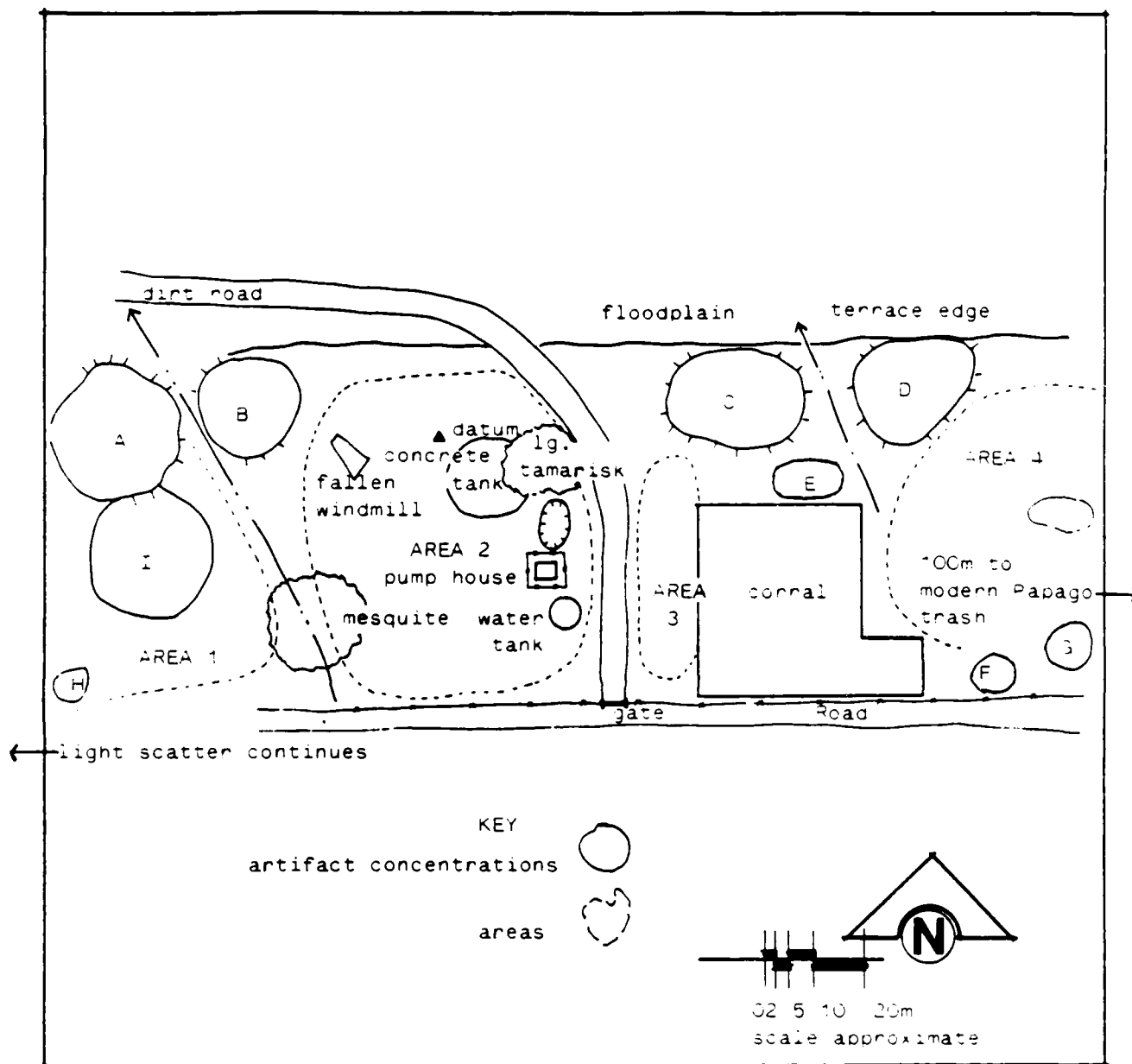


Figure 3. PRS-1, site map.

Concentration A

Occurring west of the dirt road that bisects the site are Concentrations A, B, H, and I and Areas 1 and 2. Concentration A is a trash mound measuring about 20-25 m in diameter (350 m²). In a 10X20 m section counted to estimate artifact density, the following items were inventoried: 103 plainware ceramics (8 rims), 14 redware sherds, 1 Red-on-buff sherd, 149 flakes, 27 cores or core fragments (2 of obsidian), 1 ground stone fragment, 6 shell fragments, and a turquoise pendant fragment (collected). This inventory indicates an average artifact density of 1.5 items per 1 m² at Concentration A.

Concentration B

Concentration B is situated east of Concentration A, across a wash. This locus is roughly 10-20 m in diameter (100 m²). Within this area the following were observed: 23 plainware sherds, 12 redware sherds (2 rims), 2 core fragments, 1 flake, and 5 shards of purple glass. An average artifact density value of less than 0.5 per 1 m² is indicated.

Concentrations H and I

Concentrations H and I are located south of Concentration A and are separated from Concentration B by the N-NE trending wash. The southwesternmost one is H which comprises a scatter of 18 plainware sherds, 3 core fragments, and 5 flakes in a 5 m diameter area (15 m²). Artifact density, therefore, averages 1.5-2 items per 1 m².

Concentration I is situated between Concentrations A and H. It contains hundreds of plainware sherds and lithic flakes, 6 Sacaton Red-on-buff ceramics, 6 cores or core fragments, 5 shell beads, 25 shell fragments, and 1 modern shell button. Three hundred fifty to five hundred items were observed in the approximate 20-25 m diameter area (400 m²) identified as Concentration I. Shell is notably more dense here than in other segments of site PRS-1. Average artifact density in Concentration I has been estimated at 1-1.5 items per 1 m², but several small locations within the concentration exhibit much higher densities.

Areas 1 and 2

Area 1 is the low density area that surrounds Concentrations A, H, and I. Approximately 80 plainware sherds, 4 Sacaton Red-on-buff ceramics, 3 redware sherds, 45 flakes, 3 cores or core fragments, 1 ground stone fragment, a fragment of a shell bracelet, 2 shell fragments, and a piece of purple glass were observed. Area 2 is the area that extends from the southern edge of Concentration B south to the fenceline and east to the first road that divides the site. The windmill, concrete tank, pumphouse, and water tank occur in this area. The observed artifacts include 18 plainware sherds, 12 redware sherds (2 rimsherds), 2 core fragments, 1 flake, and 5 shards of purple glass.

Concentrations D and E

East of the dirt road are Concentrations C, D, E, F, and G and Areas 3 and 4. Either Concentration C or D may be the mounds identified as a

possible, though "probably natural," house mound (Teague and Baldwin 1978:28), and it is agreed that these are most likely natural features. Concentration C covers a 20X25 m area (400 m²) north of the corral, and a small fire-cracked rock locale is visible on the surface. A 1X10 m transect was inventoried in the concentration to estimate artifact density and 38 items were counted, yielding an artifact density value of 3.5-4 per 1 m². The inventory included 24 potsherds (18 sand-tempered plainware, 2 micaceous plainware, 1 Papago (?) redware, and 3 unknown buffware), 6 lithic debitage, 3 ground stone fragments, 2 hammerstones, and 3 purple glass shards.

Concentration D

Concentration D is east of Concentration C and separated from it by an ephemeral wash. The locus is approximately 20X22 m, incorporating about 300 m². Two portions of the concentrations were inventoried in order to provide artifact density values. In a 7X20 m area at the western edge of the concentration, 77 items were inventoried, resulting in a density value of 0.5 per 1 m². In a 5X4 m area in the center of the concentration 70 items were counted, yielding a density figure of 3.5 per 1 m². The following artifacts were inventoried in the first area: 44 potsherds [21 sand-tempered plainware, 11 Papago (?) redware, 5 micaceous plainware, 5 Sacaton Red-on-buff, and 2 unknown buffware (Hohokam)], 1 mano fragment, 22 chipped stone debitage, 1 core, 4 pieces of historic crockery, and 2 purple glass fragments. In the 20 m² area inventoried, 61 potsherds (about 59 Papago (?) redware and 2 sand-tempered plainware), 2 ground stone fragments, 4 debitage, 1 shell, and 2 fragments of historic crockery were observed.

Concentration E

Concentration E is located between Concentration C and the corral and measures 17X6 m (85 m²). It is essentially a sherd scatter with some lithics. A 2 m² area exhibits the highest artifact density and the rest of the concentration is a lower density fringe. A total of 139 artifacts was inventoried within the concentration including 113 potsherds (small fragments), 25 debitage, and 1 shell fragment. Artifact density averages 1.5 per 1 m².

Concentrations F and G

Concentrations F and G are small loci that are east of the corral and near the fenceline. The first is a concentration of about 20 artifacts distributed in a linear 6X2 m area (10 m²). Two black felsite (greenstone) cores, 1 flake of the same material, and about 17 plain buff-colored sherds were inventoried, yielding an artifact density of 2 per 1 m².

Concentration G defines another linear distribution of 20 artifacts in a 6X1.5 m area (8 m²). Inventoried items include 3 black felsite (greenstone) flakes, 1 quartz debitage, and thick buff-colored ceramics with thin red- and gray-wares (15 total ceramics). Artifact density is about 2.5 per 1 m².

Areas 3 and 4

Lighter density Areas 3 and 4 are situated east of the dirt road. Area 3 lies between the dirt road and the corral, and Area 4 encompasses the terrain beyond the corral to the east up to the limits of the modern Papago trash dump and beyond the large tamarisk along the fenceline in the southeast portion of the site. Both areas comprise a scatter of prehistoric and historic Indian ceramics, lithic debitage, and shell intermingled with historic trash including purple glass fragments. Over one hundred items were inventoried in Area 3 and approximately 160 artifacts were found in Area 4. Ceramics include plainwares, Red-on-buff sherds (Hohokam), and Papago (?) redwares. Two vesicular basalt ground stone fragments are situated near the southeast corner of the corral.

Summary

Surface site integrity has been impacted negatively by modern and historic ranching activities. Sheetwash and rilling have also had their effect on the site. The linear distribution of many of the artifact clusters is probably the result of redeposition by these natural processes. In addition it appears that the sheet flooding has caused the deposition of thin layers of silt, obscuring the surface of the site although the property gives no evidence of having been inundated. Site disturbance appears to be largely surficial, thus there is good reason to suppose that intact, subsurface deposits may be present.

To summarize, site PRS-1 is a multicomponent site of considerable research value. The western portion of the site exhibits greater integrity than does the eastern portion, but intact cultural deposits may be present in both sections. Subsurface cultural deposits at Concentrations A, B, C, D, H, and I are strongly indicated. Hohokam, Papago, and historical Euroamerican components are represented at the site, and Hohokam habitation features may be located with further work. Lithic materials used at the site include the black felsite or basalt (greenstone), rhyolite, chert, quartz, obsidian, chalcedony, and vesicular basalt. Sherds are the dominant artifact type, but they are broken into small pieces making the artifact density artificially high.

3.1.2 Site PRS-2 (AZ Z:2:13)

Site PRS-2 is an extensive, multicomponent artifact scatter with pronounced internal complexity (Figure 4). The site is situated on non-inundated terrain on the Gila Bend Indian Reservation. It lies at an approximate elevation of 650 feet on a terrace on the southern side of the Gila River, south of the floodplain. The desert scrub biotic community characterizes the site environment, and elements of both the creosote and paloverde plant communities occur on-site. Shallow intermittent drainages bound the site on the east and west. To the south lies a paved road and beyond that lie cotton fields and a small patch of unaltered desert terrain.

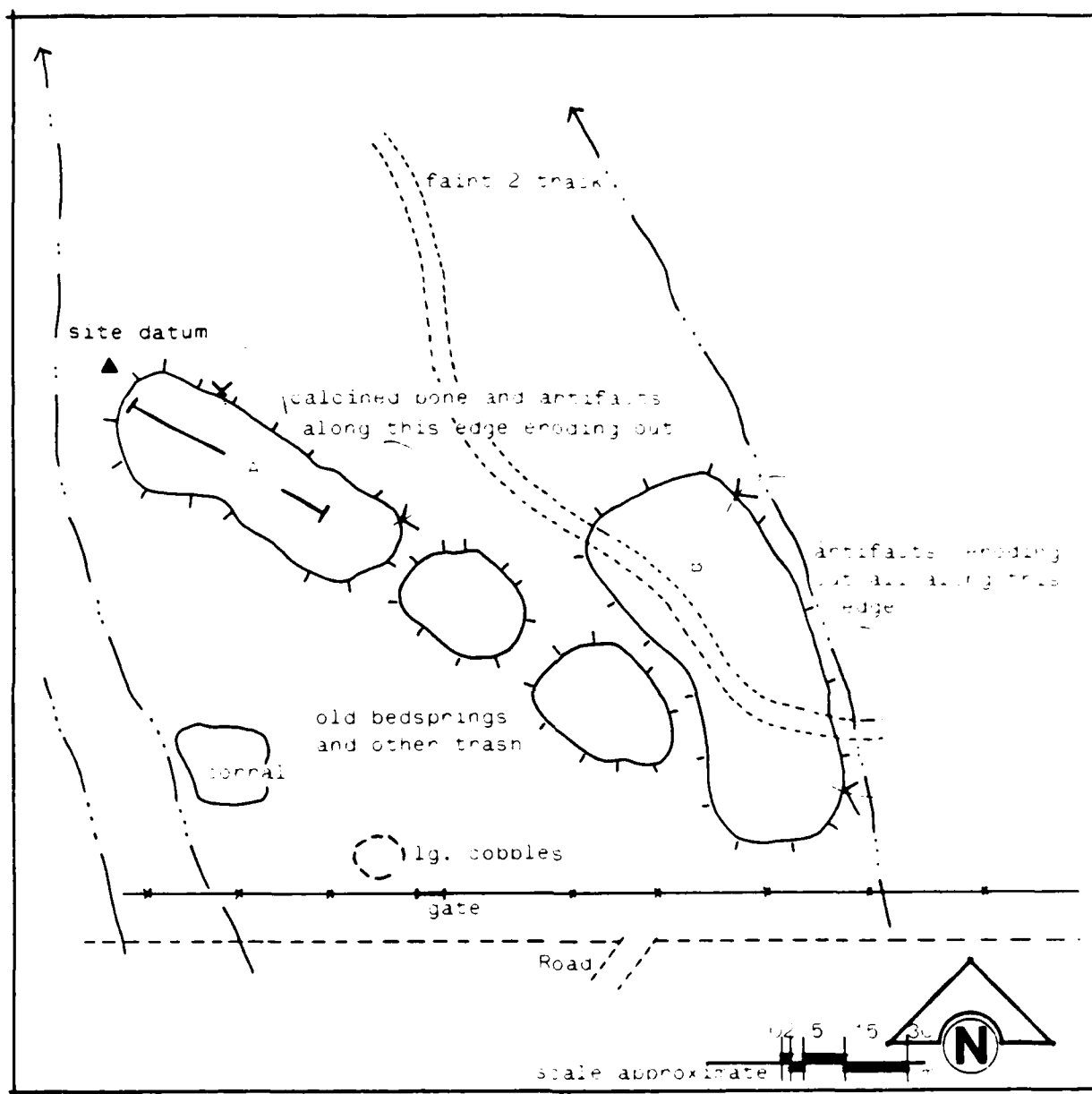


Figure 4. PRS-2, site map.

Site PRS-2 encloses an area measuring approximately 150 m from east to west and 140 m from north to south, incorporating approximately 15,000 - 20,000 m² altogether. The site has a definite NW-SE trend, paralleling the drainages on the eastern and western site extremities. When initially recorded by Teague and Baldwin (1978:28) the resource was described as a high density lithic and sherd scatter distributed over a 100 (N-S)X75 (E-W) m area centered around a blowout and adjacent small hills, which Teague and Baldwin postulated might be house mounds. They observed Lower Colorado Buffwares and some unidentified redwares but indicated that lithics comprised close to 60% of the artifact assemblage. They also identified an historic or modern cultural component. The current project identified a larger site area and determined that the hillocks recorded earlier probably are not house mounds.

Two primary prehistoric artifact concentrations have been identified at site PRS-2. These have been labeled Concentration A, the northwesternmost mound, and Concentration B, the southeasternmost mound or hillock.

Concentration A

Concentration A is elongated along a NW-SE axis and measures approximately 75X25 m (1,800 m²). A 40X1 m transect along the centerline of the concentration was inventoried in order to assess artifact density. In this 40 m² transect the following items were observed: 61 plainware sherds, 14 red-on-grey ceramics (probably Sacaton), 1 Sacaton Red-on-buff sherd, 69 lithic flakes or other debitage, 5 ground stone fragments, 2 hammerstones, 1 calcined bone fragment, 1 shell fragment, and 2 cores. These 167 items indicate an approximate artifact density of 4 items per 1 m², and a potential artifact yield of 7,500 items for the surface of Concentration A, although this value is admittedly high because the fringe of the concentration exhibits sparser densities and a segment representing this was not included in the transect. In addition to the artifacts mentioned above, historic period materials including purple glass and crockery fragments were observed.

Eroding from the northeastern slope of Concentration A are calcined bone, shell, an abundance of lithics, and Sacaton Red-on-buff ceramics. That there is depth to the cultural deposit at Concentration A is indicated by this fact. In addition the presence of calcined bone in a locus that is datable to the Sedentary period (A.D. 900-1150) of the Hohokam occupation (Sacaton phase) by cross dating of the ceramics yields a strong potential for the presence of cremated human remains in the area. It should be noted, however, that none of the bone fragments observed were clearly identifiable as human.

Concentration B

Concentration B is localized around another hillock in the southeastern corner of the site, adjacent to the arroyo that bounds the property on the east. This concentration has a more N-S orientation than Concentration A and measures approximately 85X40 m, encompassing about 3,000-3,200 m². A faint two-track road divides the concentration into northern and southern portions, and a cow trail also cuts across the northern subdivision.

The surface artifact content of Concentration B was inventoried in its entirety. North of the two-track road, three 1 m² concentrations of ceramics with other artifacts were observed north of the cow trail. The first contains 28 redware sherds, 3 plainware sherds, 6 bone fragments, and 4 purple glass fragments. The second exhibits 21 redware sherds, 3 plainware sherds, 5 bone fragments, and 3 shards of purple glass. The third localized concentration contains 53 redware sherds and 20 bone fragments. Elsewhere in this northern portion of Concentration B the following cultural material was recorded: 9 plainware sherds, 41 redware sherds, 4 flakes, 2 core fragments, and 7 pieces of purple glass.

Inventoried south of the two-track road were 62 plainware sherds, 30 redware sherds (Papago or Patayan), 35 flakes of "basalt" (greenstone) and (a few) obsidian, 6 core fragments, 7 shell fragments, and 4 purple glass shards. Artifacts were observed eroding from the eastern-northeastern slope of Concentration B, indicating some depth to the cultural deposit in this locale.

The southwestern corner of site PRS-2 contains modern and historic debris and structures including a corral, old bedsprings, nails, glass fragments, and other trash. A sherd scatter east of the main historic concentration consists of redwares. Historic trash and additional prehistoric materials are sparsely distributed over the entire site. Two natural mounds occurring between Concentrations A and B do not reveal any remarkable artifact density.

Summary

While site PRS-2 has not been inundated, other factors have affected and continue to affect site integrity. Chief among these are sheetwash erosion, rilling, and arroyo cutting. Artifacts are probably deposited within the raised hummock areas, and these are being eroded due to natural processes, causing the artifacts to be redeposited in the lower-lying areas. Rodent disturbance within the mounds is resulting in mixing of the cultural deposit, possibly disturbing stratigraphic contexts. In addition to these factors, site integrity is being affected negatively by vandalism. A pothole was discovered on the northern edge of Concentration A, and unrepresented surface collection activities may have already severely biased the surface artifact assemblage through the removal of painted wares and other diagnostics. Nonetheless, the site appears to be in good condition with probable intact subsurface deposits.

In summary, site PRS-2 has been defined as a multicomponent site of considerable research value. Sedentary period Hohokam, Papago (?) or Patayan, and historic materials have a generally mutually discrete distribution within the site boundaries. Raw materials utilized in lithic reduction at the site include the ubiquitous black "basalt" (greenstone), a white banded agate (chalcedony), and, in much lesser frequencies obsidian, chert, and opalized chalcedony. The site is receiving adverse impacts through natural and human agents but, generally, appears to be in good shape.

3.1.3 Site PRS-3 (AZ Z:2:2)

Site PRS-3 is an artifact scatter of lithics, pottery, and shell located on the southern side of the Gila River on the Gila Bend Indian Reservation. The originally recorded property has been cultivated for alfalfa, and the artifact density is quite low in this area. A site remnant, located just northeast of the original location, was reported earlier by Teague and Baldwin (1978), and was recorded in greater detail by the current project. Teague and Baldwin suggested that this site may be part of AZ Z:2:2, an extensive Colonial and Sedentary period Hohokam habitation site with an additional historic component that had been recorded by Schroeder and Ezell (1957) (Teague and Baldwin 1978:31). During the 1978 survey, the resource was recorded as a low-density artifact scatter of unknown size.

Today site PRS-3 is situated in a severely altered environment, but prehistorically the area would have been characterized by desert scrub vegetation. The property lies at approximately 645 feet elevation on a shallow terrace of the Gila River. The area has been contoured for agriculture, and a coffer dam has been created to protect the Papago cemetery, which is located just to the west, from floodwaters. It is unknown from where the fill for the dam was borrowed, but Schroeder (1957) suggests it may have been from site AZ Z:2:2.

In the search for site PRS-3 the alfalfa field was surveyed in linear transects at 20 m intervals, and the area to the west, north of the cemetery, was surveyed casually since Teague and Baldwin (1978:31) reported that vestiges of site AZ Z:2:2 could still be observed in that field. A few isolated artifacts were inventoried by this method. Among these were 16 Gila Plain, Gila series ceramics, 5 "basalt" (greenstone) flakes, 1 "basalt" (greenstone) core, and 1 ground stone fragment. Site integrity in this approximately 120,000 m² area appears to have been lost due to agricultural activities and possibly borrow-and-fill operations connected with preservation of the cemetery.

A site remnant, however, has been recorded to the northeast of the mapped site location in the berm of a road used to service the agricultural fields. This remnant encompasses approximately 400 m² and measures 35 (N-S)X12(E-W) m. The site datum was placed in this area, northwest of the artifact concentration. To assess site density a linear transect 23X1 m in size was inventoried. Recorded by this activity were 27 "basalt" (greenstone) flakes, 3 obsidian flakes, 1 "basalt" (greenstone) core fragment, 63 plainware ceramics (a few of unknown buffware), 4 Red-on-buff sherds (1 possibly Sacaton), and 5 shell fragments. A fragment of a shell bracelet was spotted, but the item was not present within the linear transect. The 103 items counted yield an artifact density value of 4.5 items per 1 m² and a potential surface artifact content of 1,600-1,700 items for the site remnant. Headward entrenchment has affected the area north and east of the site remnant and may soon encroach on the raised area containing the cultural property.

3.1.4 Site PRS-4 (AZ Z:2:14)

Site PRS-4 is a small sherd and artifact scatter located on the Gila Bend Indian Reservation, just north of a field cultivated for alfalfa. The site is situated at approximately 640 m elevation on a shallow terrace south of the Gila River (Figure 5). It is dispersed in a roughly T- or L-shaped configuration that measures 20 m from east to west and 3-7 m from north to south, but incorporates only approximately 50 m². The site comprises 4 Hohokam plainware sherds and 13 debitage of felsitic (greenstone) material. Primary lithic reduction through hard hammer percussion is the principal activity represented by the artifact assemblage. Metamorphic river cobbles have been reduced on-site.

A thick tamarisk woodland has overgrown the site, an effect of reservoir inundation. Tamarisk, mesquite, grasses, saltbush, and acacia occur on-site. Inundation or perhaps erosion from sheetwash and/or rilling has affected site integrity. The roughly linear distribution of the artifact assemblage and the geomorphic context of the site contribute to the conclusion that the artifacts are not in primary deposition. A large site, PRS-3, had originally been recorded immediately to the south. The PRS-3 site in this location, however, has been totally obliterated by agricultural activities. The resource recorded as PRS-4 may be a remnant or fringe area of this larger site that was separated by road construction or field preparation activities, or possibly redeposited from the larger site by sheetwash or rilling agents.

Teague and Baldwin (1978) originally recorded site PRS-4 as a lithic scatter encompassing 100 m² in area. The current project has redefined the site to include four potsherds, and has refined the site location to an area south of that originally designated. The previously recorded area was thoroughly searched, but no evidence of cultural materials was observed. The mano reported by Teague and Baldwin (site record) was not relocated, and the bulldozed area they reported is located just west of the site as it is presently defined.

3.1.5 Site PRS-5 (AZ Z:2:15)

Site PRS-5 is an artifact scatter centered on a gravel-topped mound that could be a terrace remnant or possibly a bulldozer berm. It lies at an elevation of 639 feet in a thick tamarisk woodland that probably was populated by typical desert scrub vegetation prior to inundation. A mesquite bosque is present near the site. The property is readily distinguishable from the surrounding terrain by color: a buff-toned deposit of fine overbank sediments surround the gray-colored gravel-topped rise.

Site PRS-5 encompasses an approximate 1,000 m² area measuring 55(E-W)X25(N-S) m (Figure 6). It is situated about 5 m north of a fenceline road that separates it from the previously recorded site AZ Z:2:2 (Schroeder and Ezell 1957), which was reported as site PRS-3 (Teague and Baldwin 1978). Surface manifestations of this latter site have been obliterated by agricultural activities. During the 1978

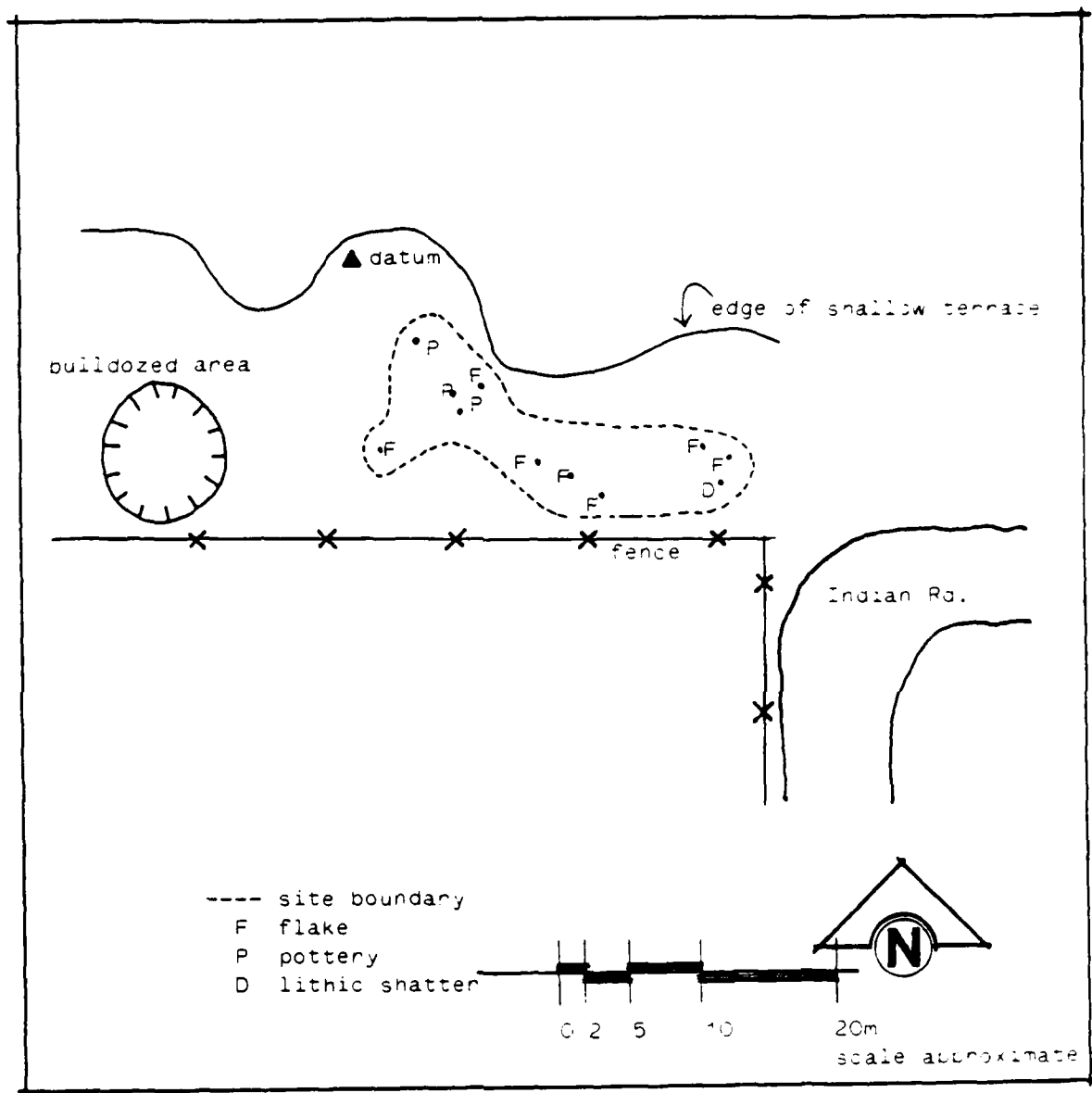


Figure 5. PRS-4, site map.

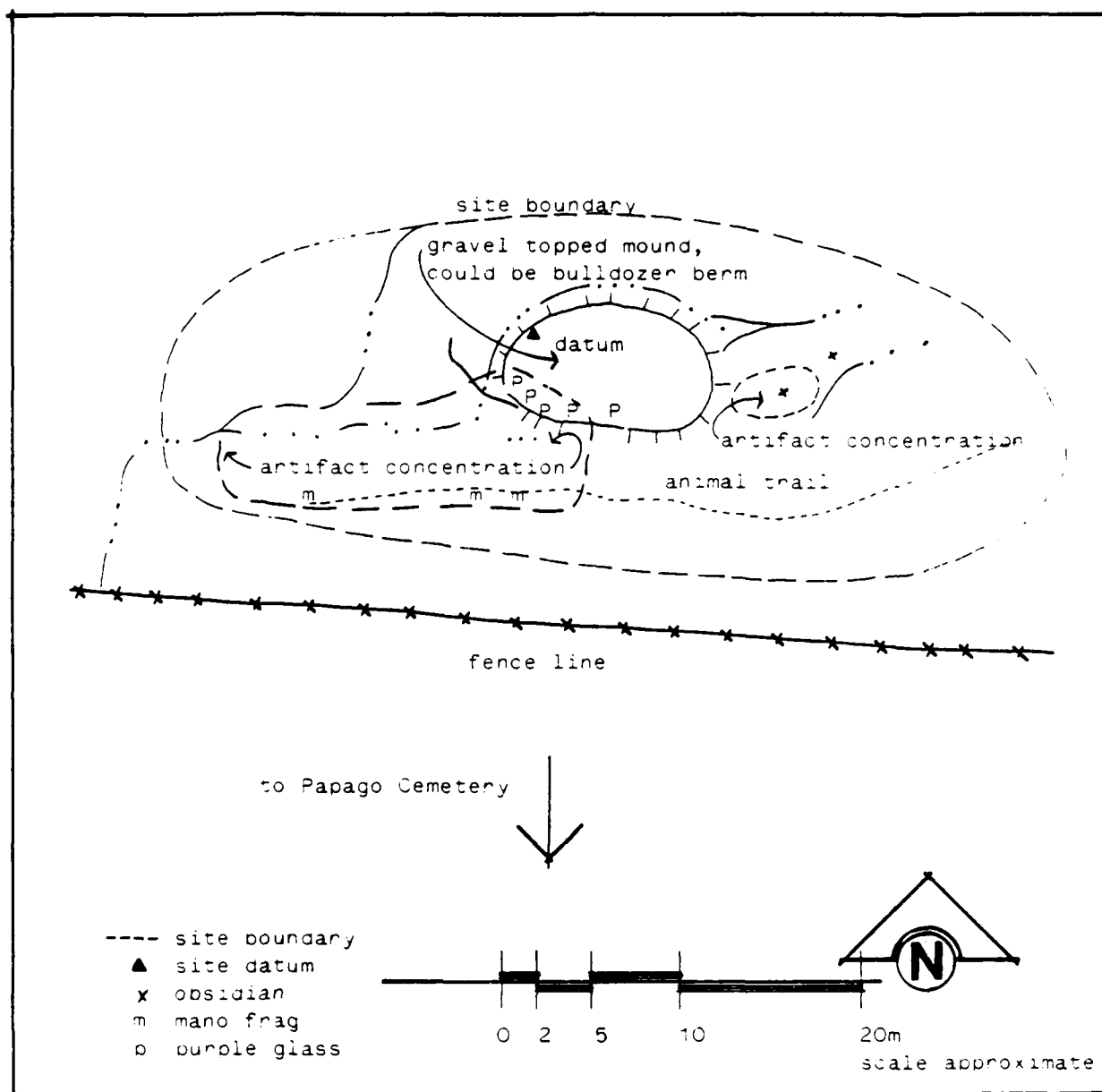


Figure 6. PRS-5, site map.

investigations site PRS-5 was defined as 30x20 m in size and was located slightly to the north. At that time it was reported that chipped stone artifacts of basalt almost exclusively made up the artifact assemblage with only a "handful of unidentified brownware sherds" present (Teague and Baldwin 1978:31). It was postulated that site PRS-5 may represent residual artifactual material from site AZ Z:2:2.

The current documentation effort has estimated a larger site area and positioned the site further to the south where the gravel-topped erosion surface reported earlier occurs. The recent research has also led to the realization that site PRS-5 may just be a portion of site AZ Z:2:2 that was shoved across the road when the agricultural field was leveled, or it may represent redeposited material that resulted from road grading activities. Soil profiles would need to be examined to determine the contextual integrity of this site.

The total artifact content of site PRS-5 was inventoried, and the results indicate a much greater ceramic frequency than that which was originally indicated. Ceramics comprise 44% of the artifact assemblage, and 31 items were observed including one Sacaton Red-on-buff sherd indicative of a possible Sedentary period Hohokam cultural affiliation for the site. Four buffware and 26 plainware sherds comprise the remainder of the inventoried ceramics.

In addition to the pottery, 38 chipped stone artifacts were found. These included 28 primary flakes and 10 cores or core fragments of black "basalt" (greenstone) and rhyolite with one obsidian flake. One of the cores had a flaked tool edge, and utilization was indicated by battering along this edge. Four fragments of the same granite mano (refit) were found about 8 m apart distributed along a rill. Six purple glass fragments also occur at the site.

Site PRS-5 has been affected by inundation. The thick tamarisk woodland and silty overbank deposits obscure the site. It is apparent that artifacts of some considerable size (the mano fragments) have been redeposited. Portions of the site have large deep holes (up to 30 cm in diameter and 1 m deep) that may have resulted from water streaming through rodent holes. The western portion of the site has been eroded away, and it is possible that the northern edge of the site has been bulldozed. Artifacts were seen eroding from cut banks and from the gravel-topped mound. Further work (excavation) is needed at this site to determine if intact deposits still exist or if they were ever present in primary context.

3.1.6 Site PRS-6 (AZ Z:2:3)

Site PRS-6 was described by Teague and Baldwin (1978:32) as "an extensive sherd and lithic scatter, representing a possible habitation site ... Ceramics, cores, primary and secondary flakes, hammerstones and burned bone were found ... Ceramics ... are Lower Colorado Buffwares." Negative impacts recorded by Teague and Baldwin in 1978 included erosion, vegetational brushing, and grazing.

This site could not be relocated by the current investigation. Today it lies in a thick tamarisk woodland on the southern side of the Gila River within the Gila Bend Indian Reservation. The ground surface has been silted over, masking all surface evidence indicative of a site. The site is situated at an approximate elevation of 631 feet on a floodplain of the Gila River. Inundation has clearly affected relocation of the site, and very possibly its contextual integrity if it still exists. The site may be buried under the silty overburden, but the presence of the tamarisk woodland will make relocation of the site difficult and further work at the site costly.

As described by Teague and Baldwin, site PRS-6 was a Patayan habitation site about 20,000 m² in area and located within three-quarters of a mile of the Fortified Hill site. As such this site would have been extremely significant for examining the Patayan-Hohokam cultural interaction during late times prehistory.

In view of its strategic research potential, extensive efforts to relocate the site were conducted. The dirt road which previously was proximal to the site, however, has been totally obliterated by the growth of tamarisk. Another track lies to the north now, and surveyors proceeded south from this location in an unsuccessful attempt to find site PRS-6. A second unsuccessful relocation effort was initiated by proceeding from the fenceline about one-quarter of a mile south of the site and following a cardinal compass direction (N) while counting paces to the mapped site vicinity. It is estimated that a 400X400 m area was thoroughly searched by these efforts, but the site could not be found.

3.1.7 Site PRS-7 (AZ Z:1:19)

Site PRS-7 is an historic site, about 100 m² in size, situated at approximately 640 feet on the northern side of the Gila River. It is on the western side of the landform known as Point of Rocks and lies within the Gila Bend Indian Reservation. Teague and Baldwin (1978:29) recorded the site as an historic well resource consisting of "a capped pipe with a large stone cairn ... surrounded by glass bottle fragments, tin cans, metal pipe, china sherds, and pieces of concrete." In 1978 the existing impacts were reported as grazing and possibly inundation.

Due to logistic problems and the limited time available for the current recording project, site PRS-7 was not revisited during the 1986 investigations. Approximately 12 person hours would have been needed to transect the tamarisk woodlands on the north and south floodplains of the river as well as to the cross Gila itself. The 4-wheel drive vehicles used on the project got bogged down in the river sediments early in the fieldwork; thereafter, we crossed the river as few times as possible.

Site PRS-7 was considered to be sufficiently marked with the capped pipe, and a records search might be the most appropriate documentation activity. The jeep trail situated adjacent to PRS-7 on the west was transected one-quarter of a mile north of site PRS-7 when site PRS-8 was documented. The trail is easily visible and so the relocation of site PRS-7 should be easily accomplished if necessary. The area has been inundated and it is unknown what effect this has had on the historic resource.

3.1.8 Site PRS-8 (AZ T:13:50)

Site PRS-8 is a sherd and lithic scatter with an associated aboriginal trail (Figure 7). It is located on the western edge of the landform that lies directly south of the Fortified Hill site (AZ T:13:8) in the southern extension of the Gila Bend Mountains. Situated within the creosote desert scrub plant community, the site lies on a pediment ridge at an approximate elevation of 661 feet. It is within the boundaries of the Gila Bend Indian Reservation.

Site PRS-8 is distributed in a 75X60 m area (approximately 3,000 m²) with an area of observably higher artifact density assuming a linear distribution congruent to the aboriginal trail. The trail skirts a level area toward the base of the ridge on which the site lies and then proceeds to the N-NE across a shallow saddle above a deeply entrenched wash before turning westward to ascend one of the easier gradients (one of two) that provide access to the Fortified Hill site. An attempt to trace the trail south of the PRS-8 site was unsuccessful. Once off the ridge the trail disappears in terrain that has been impacted by flood waters. In the trail segment from site PRS-8 to the Fortified Hill site it is apparent that the large cobble and boulder sized clasts have been removed, making the trail more easily distinguishable from the surrounding terrain.

To record the site, linear transects at 5-10 m intervals were walked and all observed cultural material was pinflagged. Two 9 m² (3X3 m) areas near the trail were inventoried to assess moderate and high artifact density values at the site. Flagged items in the rest of the area were then counted and listed. Twenty six plainware sherds were inventoried in the high density sample area at the northern perimeter of the site, yielding a density value of 3 per 1 m². The moderate density sample area was situated in the south central portion of the site just west of a possible cleared circle feature with a lipped rim. Eight plainware sherds were inventoried in this area, yielding a density figure of 1 per 1 m². A brief general count outside these density areas resulted in the following list of cultural materials: 98 potsherds (including 10 redwares), 19 flakes and other debitage, and 5 cores or core fragments. Lithic raw materials used on-site include rhyolite, green and black felsite (greenstone), quartz, and one flake of cryptocrystalline silicate.

Teague and Baldwin (1978:24) initially found the site in 1978 and reported that four sherds of Lower Colorado Buffware lay along the trail. These items were not relocated, but some redwares were observed. They also related that a rhyolite quarry (AZ T:13:15) lies E-NE of site PRS-8 and that choppers and hammerstones were present in the artifact assemblage together with ceramics and chipped stone. The hammerstones were not seen, but it is possible that the choppers reported are the biface cores that were inventoried by the current project. No historic material was observed.

The site has not been inundated, but debris marks the shoreline of the last inundation just below it. The pediment ridge which contains PRS-8 must have jutted out into the flood waters at that time. Flood debris surrounds the base of the hill and extends eastward into the washes that bound the property on the north and south.

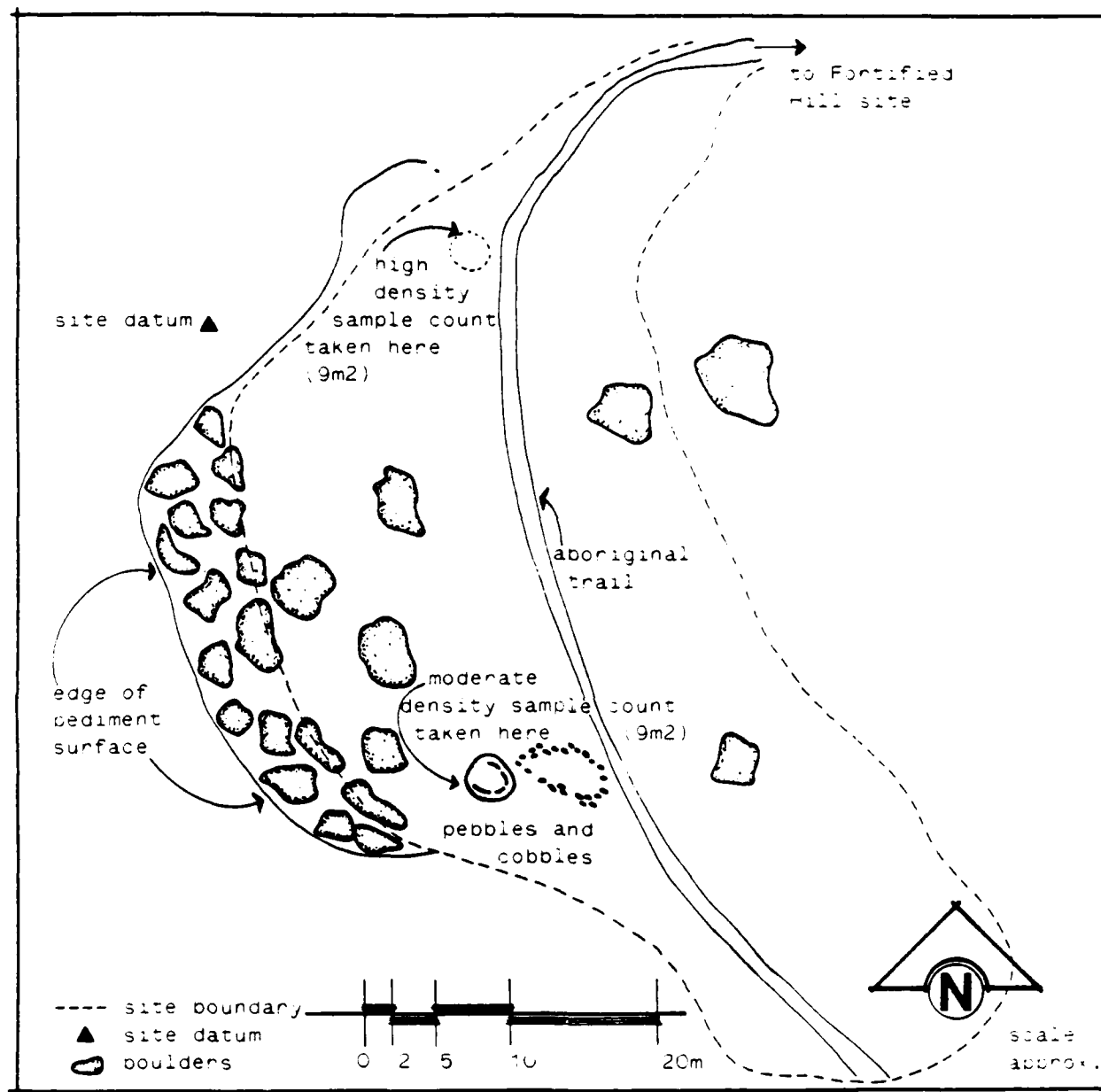


Figure 7. PRS-8, site map.

3.1.9 Site PRS-9 (AZ T:13:51)

Site PRS-9 could not be relocated during the 1986 investigations. An attempt to reach it ended unsuccessfully due to dense tamarisk woodland. Surveyors could not get any closer than one-half mile to the property. No roads are in the immediate site vicinity, and the entire area has been inundated, hence the dense tamarisk growth.

Teague and Baldwin (1978:32) described the site as a sherd and lithic scatter about 10,000 m² in size. The property contained an abundance of ceramics (primarily late period Hohokam redwares) and a lesser amount of chipped stone. The present condition of the site is unknown, but the effects of reservoir inundation have severely inhibited, if not precluded, any further documentation of this large site.

3.1.10 Site PRS-10 (AZ Z:1:11 and/or 12)

Site PRS-10 lies somewhere within the dense mature tamarisk woodland on the southern side of the Gila River within the Gila Bend Indian Reservation. It was not relocated by the 1986 investigations. A strenuous effort to relocate this site, as well as PRS-11 which is situated nearby, was effected. Two different trails were blazed from the closest recognizable landmark to the site area using compass bearings. Every 50-100 m a 20-40 m transect perpendicular to the main trail was surveyed, but no evidence of cultural material was seen. While attempts were made to maintain a single direction of travel, the woodland would not yield to foot traffic in many areas and the surveyors had to divert to another direction and then work their way back. The path through the woodland was flagged so the archaeologists could find their way back out.

Teague and Baldwin (1978:27) described site PRS-10 as a large (75X100 m) sherd and lithic scatter with Cardium shell present in minor frequency. Ceramics included Gila Plain, a few lower Colorado Buffwares, and some redwares (Classic period Hohokam). Teague and Baldwin were not sure if this site had been recorded in 1960 by Wasley and Johnson as sites AZ: Z:1:11 and AZ Z:1:12. They also reported that the area west of the site had been cultivated.

The survey archaeologists (1986) found abundant evidence of cultivation in their attempts to relocate the site. Old fencelines were crossed and an old cement irrigation ditch was followed eastward for a good way. The surface of the ground is covered with silt and vegetational debris dropped by the tamarisk. Cut banks were checked for eroding cultural materials with no success. After expending 12 person hours in an attempt to locate sites PRS-10 and PRS-11, the effort was given up as hopeless. Given the circumstances, the surveyors were reasonably certain that they were in the right area; the original surface of the ground could no longer be seen or even surveyed intensively due to the adverse effects of inundation.

3.1.11 Site PRS-11 (AZ Z:1:18)

Site PRS-11 is an historic mine shaft situated about 30 m north of site PRS-10 on the Gila Bend Indian Reservation. Both sites lie at an approximate elevation of 630 feet, and so they have been inundated. Refer to the survey methods discussed for PRS-10; both sites were searched for

concomitantly with negative results. It was thought that the cement irrigation ditch that was found could have been the "ditch or canal" reported on the site record as dividing the two sites. Intensive forays into the tamarisk jungle both to the north and south, however, revealed no historic or prehistoric remains.

3.1.12 Site PRS-12 (AZ Z:14:8)

Site PRS-12 is an extensive petroglyph site with an associated artifact scatter (Figures 8 and 9 and Appendix 2) that is centered on the southern projection of the Gila Bend Mountains that forms the eastern "bend" of the river bed. The site is located on the northern side of the Gila River and ranges in elevation from 640 feet to 800 feet. The prehistoric property extends for 500 m along a NW-SE axis and varies from 150-300 m in width (about 100,000 m²). A narrow terrace is found at the base of the hill which is formed by outcroppings of resistive granite. The desert scrub biotic community is represented by the environment, and elements of the mixed paloverde-cacti and creosote-bursage communities characterize the floral assemblage. The site provides excellent vantage for upriver and downriver views.

Site PRS-12 extends for 500 m along a NW-SE axis and varies in width from 150-300 m. Petroglyphs are distributed on the heavily varnished granite surfaces found on the two knolls (Hill 840), around the base of the landform (eastern side) and upslope where bedrock is outcropping, and on the many large boulders strewn over the hillslopes. The petroglyphs were observed to extend westward (toward Point of Rocks) and northward (toward Hill 904) in a linear, river-facing distribution. The full areal extent of the petroglyphs could not be documented due to the widespread distribution of the resource and the limited field time available for recording.

The highest densities for petroglyphs were observed along the top of the knolls and along the lower slopes where granite outcrops and boulders are abundant, especially along the southern and eastern perimeters of the tip of the projecting landform. Desert varnished surfaces have been pecked to form anthropomorphic, animal, circle, and rectilinear geometric designs. Thousands of design elements are represented.

A small segment of the petroglyphs were recorded through photography and sketches, and overall measurements were taken. This resource documentation activity was concentrated at the southern projection of the site and included the area from the base of the hill upslope to the level area (where metates are) just south of the southernmost knoll. Over 300 design elements occur in this small area. The desert varnish has been pecked through with a hammer to expose the buff-colored granite beneath. Concentric circles, spirals, wavy lines (snakes), lizard men, and stick men are the most common elements.

A second site component is the light density artifact scatter that lies on the terrace deposit that surrounds the base of the hill. Sections of the terrace have been cut back by stream action, probably carrying with it portions of the site. Artifacts observed on the sandy terrace include

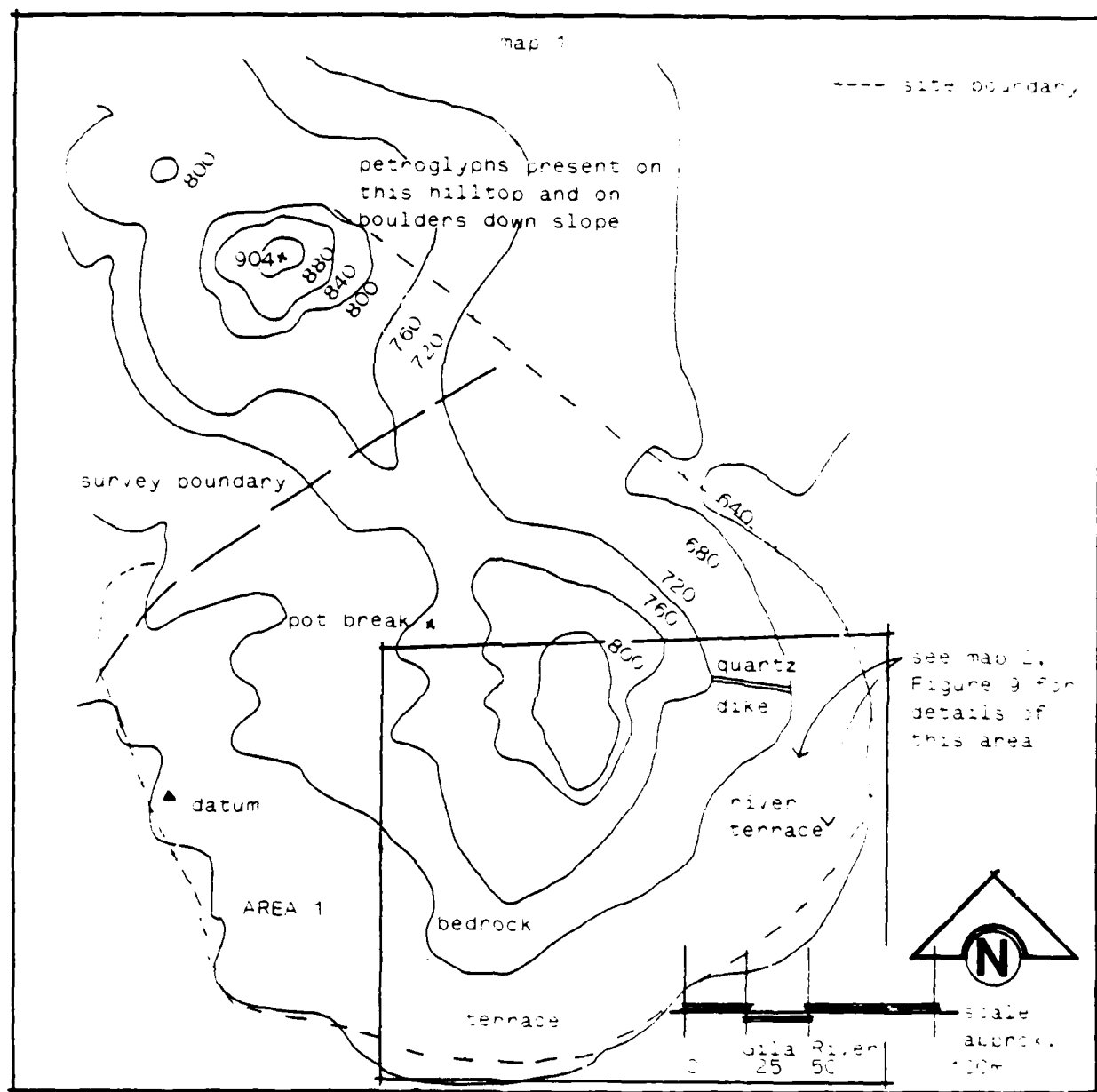


Figure 8. PRS-12, site map.

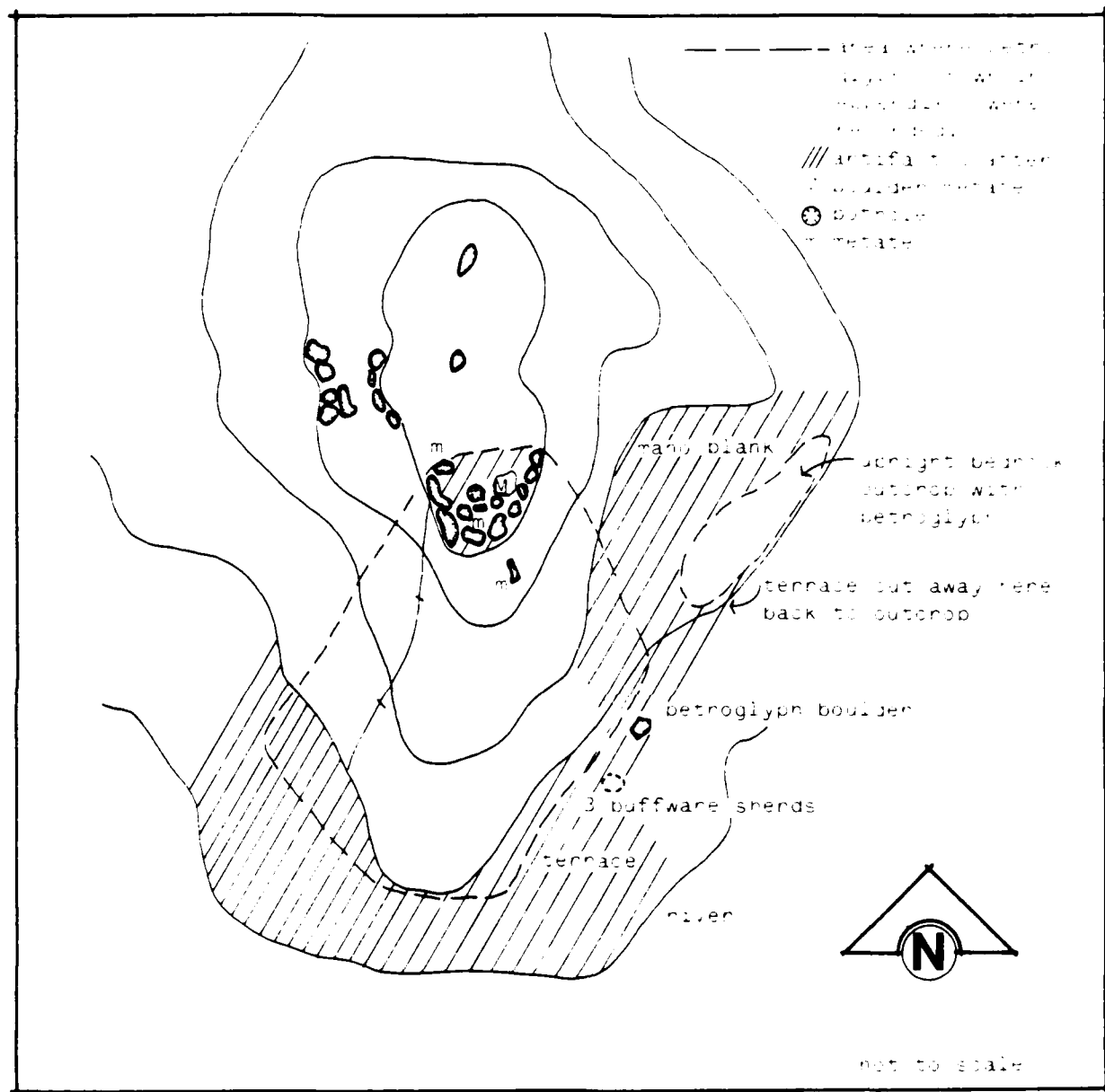


Figure 9. PHS-12, site map, detail.

ceramics, chipped stone, ground stone, and hammerstones. Subsurface cultural deposits may exist in the terrace. Materials are buried readily through the rapid erosion of the granite hill and formation of the talus slope.

Fifteen plainware, 3 buffware, 1 Red-on-buff, and 1 Gila Plain with a Gila shoulder were recorded, indicating a possible Sedentary period Hohokam association for the site. A pot drop was also seen on the western side of the land form, uphill toward the second peak. No other artifacts were seen in this vicinity.

Approximately 37 primary and secondary flakes were observed as were nine cores. Raw materials utilized include black felsite (greenstone), brown felsite (greenstone), rhyolite, milky quartz, and chert/chalcedony. Stream cobbles were being reduced on-site, and amorphous and biface cores ("choppers") have been left behind. Two instances of split cobble reduction were noted, and it is obvious that simple materials testing also took place. A quartz dike runs through the granite on the eastern side of the landform. This may be the raw material source for the quartz found at this site and others in the Gila Bend area. The detritus around the dike, however, seem to break into angular fragments and are generally of poor quality, but larger, more massive samples of toolstone are also present. The country rock around the dike has been metamorphosed into a granite schist.

The hammerstone and ground stone artifacts include seven hammers of quartzite (2) and black felsite (greenstone) and two manos. Manufactured from sandstone one mano was small, bifacial, and pecked into a circular form. The second mano was a large subrectangular blank fabricated from vesicular basalt. Four granite bedrock metates have also been recorded in the granite outcropping south of the first knoll. The surface containing the ground area on these was measured. Metates 1 and 2 display a flat surface and measure 53X30 cm and 77X52 cm, respectively. Metates 3 and 4 exhibit slightly concave use surfaces and measure 31X45 cm and 76X28 cm, respectively. The latter metate was found downslope to the south off the tip of the outcrop, while the former three were situated in the level area immediately adjacent to the outcrop on the north. An apparent pothole has been excavated in this area central to the three metates.

The current investigation has established that the site is much larger than previously recorded (Teague and Baldwin 1978:32 and site record). It was originally defined as a 30X70 m petroglyph site on a basaltic outcrop with 1 Gila Plain sherd, 2 bedrock metates, and 2 flakes in association. The site is situated on granite rather than basalt, and a greater range of artifact categories and raw material types have been observed. In addition, greater artifact densities and a potential for subsurface deposits have been defined. Teague and Baldwin (1978:32) state that this site is probably AZ Z:14:8, originally recorded by Schroeder and Ezell in 1957. Like them, we were unable to locate a rock alignment reported on the 1957 site record. One petroglyph design element, a fish, observed by the 1978 field teams was not recorded during the current documentation.

Inundation has had adverse effects on the lower portions of this site. Tamarisk is invading the area, and a portion of the site-bearing terrace may have been cut away. One isolated bedrock outcrop on the southeastern perimeter of the site has prevented destruction of the terrace in that area, but the abundant petroglyphs on these rocks (at least 200 elements) have almost faded from view because of the removal of the varnish, probably through solution rather than abrasion, but the actual agent could not be determined. Natural erosional processes (wind, water, mass wasting) are also causing mild deterioration of this significant cultural property.

3.1.13 Site PRS-13 (AZ T:14:10)

Site PRS-13 is a high density artifact scatter located on the northern side of the Gila River on the Gila Bend Indian Reservation. The site is situated at an elevation of 640 feet on a river terrace in typical desert scrub assemblages, including creosote, mesquite, saguaro, and cacti among the flora. The site ends abruptly along the southern boundary where the terrace drops off sharply to the tamarisk-covered floodplain below. Schroeder and Ezell may have recorded this property in 1957 as AZ T:14:10, a Yuman site. Both Hohokam wares and Lower Colorado Buffware were observed during the 1986 investigations. The range of data categories present and the probable occurrence of subsurface cultural deposits are indicative of the potential that site PRS-13 served as a habitation locus.

Today site PRS-13 measures approximately 140X90 m, with the long axis occurring from east to west. The site boundaries encompass about 9,500 m² of area. The data classes that occur include a disarticulated rock feature, ceramics, flakes, cores, a projectile point, ground stone, shell and fire-cracked rock. Ceramics comprise approximately 70% of the artifact assemblage. Immediately north of the site are petroglyphs but these had not been defined as part of the cultural assemblage by previous investigations (Teague and Baldwin 1978) and, indeed, artifact density does decrease sharply in the 100 m between the site area and the base of the hill where the petroglyphs are found on boulders and bedrock outcrops upslope for an unknown distance. Petroglyphs occur in an unbroken distribution from site PRS-12 westward, north of site PRS-14 and site PRS-13, possibly all the way to Point of Rocks and the Fortified Hill site. The areal distribution of the petroglyphs was not fully investigated due to the extremely adverse field conditions and the limited time available for the documentation of each cultural site. Petroglyphs west of site PRS-13, however, are indicated on the U.S.G.S. topographic maps, and the field personnel again noted them at Point of Rocks and the Fortified Hill site as extending to the west.

In order to record the property and estimate artifact density the following methods were utilized. The site was transected with parallel linear sweeps at 15 m intervals to determine site boundaries. Artifacts, artifact clusters, and features were pinflagged during the sweeps, and data classes were identified. Artifact densities were then estimated in four distinct areas of the site by completely inventorying all artifacts within a measured 3X3 m square. Each measured square was designated by a letter (A-D), and the locale was included on the site sketch map (Figure 10).

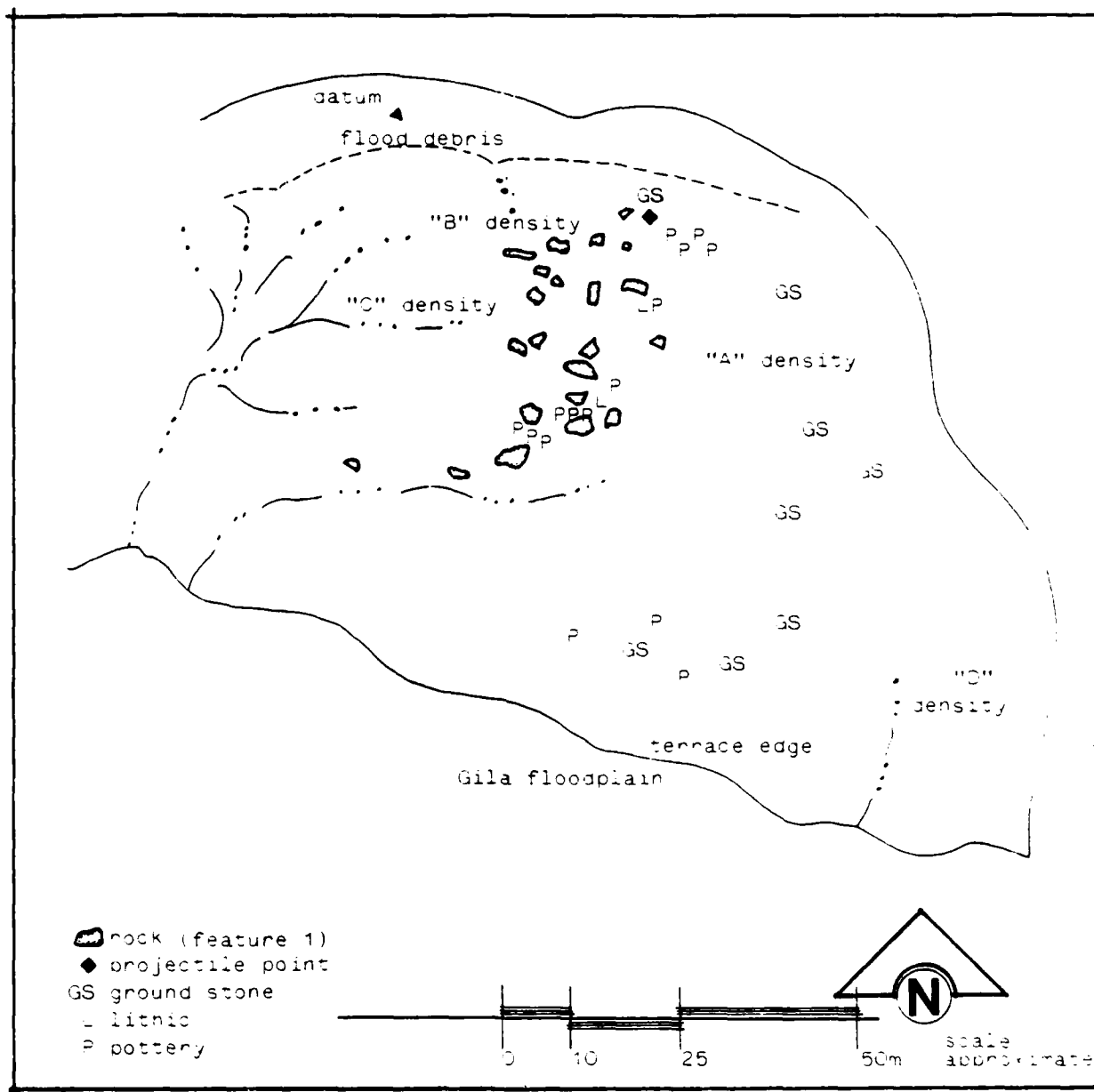


Figure 10. PPS-13, site map.

Artifact densities across the four areas range from 3.5-14 items per 1 m² with an average of 8 per 1 m². Area A is situated in the northeast one-quarter of the site where many of the ground stone artifacts occur. Sixty two items were inventoried in this square including 46 plainware sherds, 2 Red-on-buff ceramics, 6 flakes, 1 metate fragment, 1 mano fragment, 2 shell fragments, 2 bone fragments, and 2 fire-cracked rocks. Artifact density is estimated at 7 items per 1 m².

Artifact density square B is situated in the north central portion of the site adjacent to a disarticulated rock feature. The feature is comprised of 21 stones loosely arranged in a reversed L shape that is 5.6 m along the N-S leg and 2-3 m along the E-W one. A small triangular obsidian point (collected) was associated with the feature. Thick flake-based tool production is represented. The lateral edges were serrated, and the central portion of the base was notched with two pressure flakes on both sides. The point is similar in form to one recovered from the Gatlin site (Wasley and Johnson 1965: Figure 17(e), but no points manufactured of obsidian were recovered from Hohokam sites by Wasley and Johnson. A small triangular point fragment of obsidian with a concave base, however, is reported from a Lower Colorado Buffware site (AZ T:13:7) some distance to the west (Wasley and Johnson 1965:71).

A total of 129 artifacts was inventoried in density square B. Most of these were very small fragments of pottery. The 129 artifacts include 108 plainware sherds, 3 redware sherds, 12 flakes, 2 cores, 1 ground stone fragment, and 3 bone fragments. These results yield an artifact density value of 14 per 1 m².

Artifact density area C is a "blowout" area southwest of square B. Many small rivulet channels, probably the result of receding flood waters, dissect this area exposing buried cultural material. A total of 63 artifacts were counted in this square yielding an artifact density value of 7 per 1 m². The artifacts include 49 plainware sherds, 6 redware sherds, 5 flakes, and 3 core fragments.

Density square D is located within the southeastern fringe of the site. Thirty items were inventoried within the 9 m² unit in this location: 27 plainware sherds and 3 flakes. Artifact density is estimated at 3.5 items per 1 m².

The ceramic composition at the site indicates occupation/utilization by two cultural groups: Hohokam and Patayan. It appears that Lower Colorado Buffware and Hohokam plainware occur in equally high frequency. Red-on-buff and Hohokam redwares were also observed. The Lower Colorado Buffware appears to be granite-tempered but gradations to finer-tempered, thinner sherds were observed. No stucco varieties, reported earlier by Teague and Baldwin (1978:29), were seen.

Ground stone artifacts are located nearly exclusively in the eastern one-half of the site. A vesicular basalt mano in three fragments and eight vesicular basalt metate fragments, probably representing the same tool, were identified in this area.

Chipped stone items vary considerably in raw material type and flake size at site PRS-13. Among the raw materials exploited are black felsite (greenstone), black chert (one utilized flake noted), quartz, rhyolite, a very fine-grained rhyolite, and obsidian (projectile point). Quartz was noted to be in higher frequency here than at other sites documented during the 1986 investigations. This may indicate the proximity of a quartz quarry, possibly the dike recorded at site PRS-12. Of the activities represented by the chipped stone artifacts, materials testing seems to predominate. River cobbles were cracked open to examine rock homogeneity and texture. It may be, however, that simply a few large flakes were acquired and used, unmodified, for specific tasks. Decortication flakes are most abundant, and core trimming flakes were also seen. Interestingly, many small (tertiary) flakes were noted. These indicate that some tool manufacture and/or rejuvenation were undertaken at the property; however, no feathered terminations were observed. The presence of items representing the latter stages of tool reduction lends support to the idea that PRS-13 represents a habitation locus.

Scattered shell fragments were found throughout the site, but increased densities were noted along the southern and western perimeters. Glycymeris and Cardium genera were identified.

The 1986 archaeological investigations of site PRS-13 have served to redefine and expand on the site attributes recorded by the 1978 field team (Teague and Baldwin 1978:29). Site area was increased from 75X75 m to 140X90 m, and additional data classes, including ground stone, shell, and the obsidian point, have been reported. Red-on-buff pottery was added to the ceramic assemblage. A dense distribution of artifacts was found associated with the disarticulated rock feature whereas earlier "no apparent associated cultural material" was reported (Teague and Baldwin 1978:29).

Site PRS-13 has been adversely affected by inundation. Wood debris from the flood event marks the shoreline at the northern perimeter of the property. Overbank sediments are shallowly deposited over the surface of the site, and the natural vegetation (creosote and mesquite) has been killed. Grass occurs on-site today and it is being grazed: cow trails criss-cross the site opening additional areas to natural erosion processes. It appears that the runoff from receding floodwaters dissected the cultural bearing terrace soils carrying portions of the site away and exposing additional areas to erosion processes. The western portion of the site has been injured by this downcutting effect.

Despite some damage, site PRS-13 provides a significant research resource for examining Hohokam and Patayan interaction during Late Times prehistory. Additional work at the site should be undertaken before further attrition to the research potential by natural erosion processes and the current land use (grazing) can occur.

3.1.14 Site PRS-14 (AZ T:14:32)

Site PRS-14 is an artifact scatter (Figure 11) situated on a river terrace on the northern side of the Gila just outside the boundaries of the Gila Bend Indian Reservation. The property is located in the creosote bush

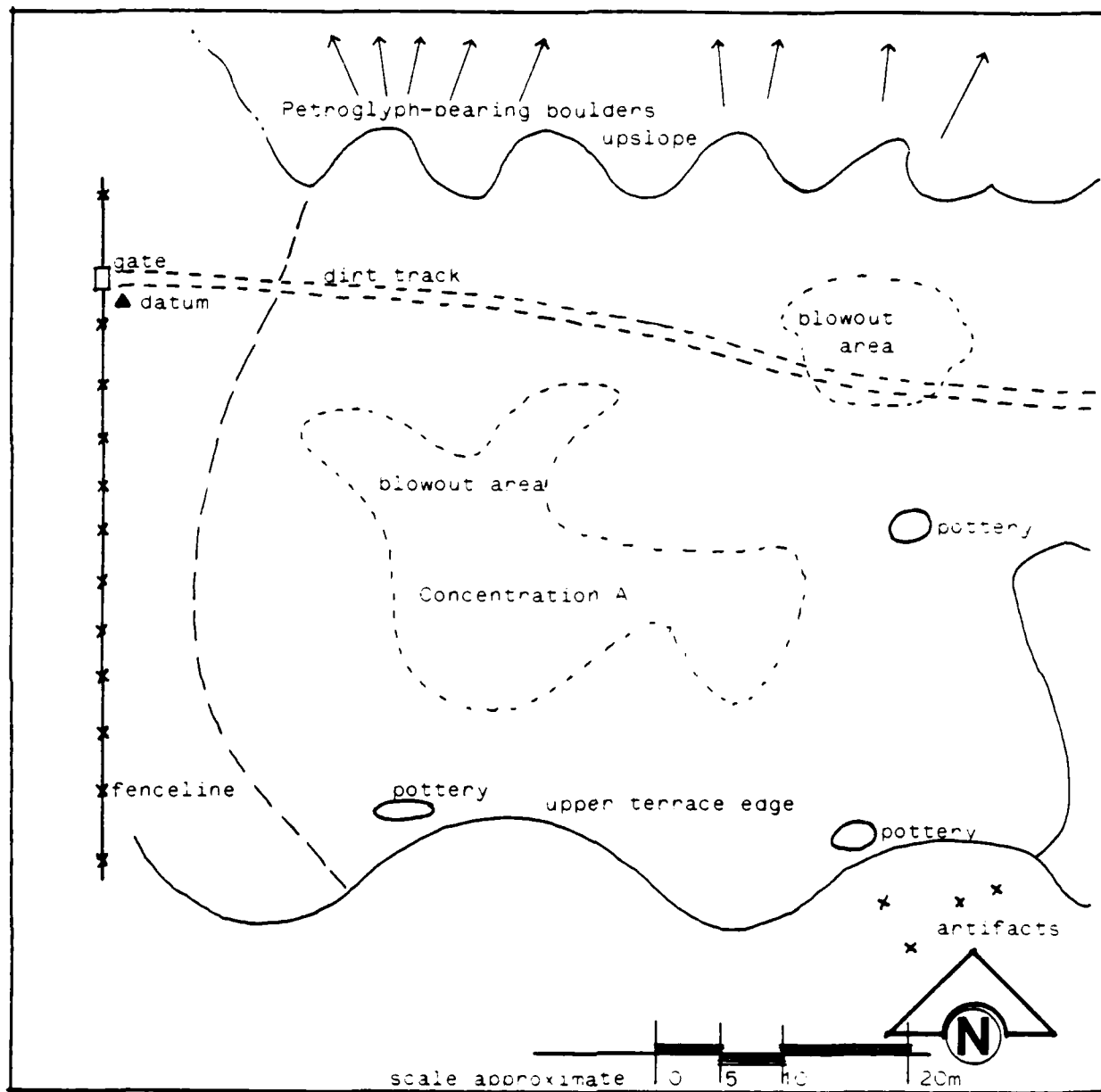


Figure 11. PRS-14, site map.

scrub community at an approximate elevation of 640 feet. To the north the terrace abuts the slope of a hill that contains abundant petroglyphs on granite boulders, but these were not included in the original site description. Just northwest of the site, petroglyphs were observed to extend northward along a canyon. The petroglyphs are continuous to site PRS-12 on the east and to site PRS-13 on the west.

Site PRS-14 encompasses approximately 7,200 m² and measures 120(E-W)X60 (N-S) m. It apparently lies on two terraces with the upper one containing the majority of the site centered around two "blowouts." Data classes available at the resource include pottery, ground stone, and chipped stone. Depth to the cultural deposits is indicated by artifacts eroding from soil profiles.

The property was transected with linear sweeps at 10-15 m intervals, and all artifacts were pinflagged. The larger blowout is identified as Concentration A, and the greatest artifact density occurs here. A 3X3 m square in this area was inventoried in order to evaluate a high artifact density average. The scattered artifacts pinflagged outside the boundaries of the concentration were also counted and classified.

A total of 76 artifacts was inventoried within the high density control square (9 m²) in Concentration A, yielding a density value of 8.5 per 1 m². Among the artifact inventory are 28 plainware sherds, 1 buffware sherd, 43 flakes, 3 cores or core fragments, and 1 ground stone fragment. Two hundred and eleven items were flagged outside Concentration A, indicating an artifact density value of 0.5 per 1 m². Items recorded in the lower density area include 56 plainware sherds, 2 Red-on-buff ceramics, 4 buffware sherds, 113 flakes, 33 cores or core fragments, 1 metate fragment, 1 mano (shaped red granite), and 1 mano fragment.

Overall, chipped and ground lithics comprise the bulk of the artifact assemblage. Of the 287 artifacts counted, 195 or 68% are lithics and 91 or 32% are ceramics. Sixty-seven percent of the items are chipped stone cores or debitage. Raw materials utilized include black felsite (greenstone), rhyolite, and quartz. Flakes and a core of quartz are present: a quartz dike at site PRS-12, just to the west, may be the toolstone source.

Ninety-eight percent of the inventoried ceramics are plain or buff wares and 2% are a painted ware. The painted type is Red-on-buff, a Hohokam ware. We were unable to distinguish whether the buffware was either a Hohokam or Lower Colorado ware.

In 1978 Teague and Baldwin recorded the site as being larger in size, measuring approximately 400X100 m. It is possible that what remains is a remnant of the original site, the rest removed by floodwaters. Flood impacts are evidenced by overbank sediments and an occasional tamarisk. Wood debris marks the high rise shoreline; approximately 70% of the site has been inundated. Sheet flood activity has led to the downcutting of arroyos throughout the site, and artifacts are seen eroding from the cutbanks. Negative impacts to site integrity are also resulting from wind erosion and the current land use, grazing. Stock trails through the site are opening increased surface area to natural erosional processes.

3.1.15 Site PRS-15 (AZ T:13:49)

Site PRS-15 is a small lithic raw materials testing locus found on the lower portion of a bajada approximately 1.3 km N-NE of the Fortified Hill site. It is situated at an elevation of 720 feet in a low density creosote-bursage community. The resource comprises approximately 14 flakes that have been reduced from a rhyolite cobble by hard hammer percussion (Figure 12). The chipping station was refit in its entirety, and nothing had been removed from the reduction locus.

Considerable effort was invested in relocating site PRS-15 which was described as "a semicircular rock feature ... almost on the section marker of Sections 2, 3, 10 and 11" (Teague and Baldwin 1978:33). The site record reported it as occurring 100 m NE of a chipping station of 8 or 9 basalt flakes. The corner marker was located by the 1986 team, but an intensive pedestrian survey of a 450X250 m area around it revealed no evidence of a cultural feature. The site had been plotted south of the corner marker, and the 1986 team found the chipping station north of the corner marker. It can be stated without a doubt that no rock ring exists today in the vicinity of the section marker.

3.1.16 Site PRS-16 (AZ T:13:22)

Site PRS-16 (AZ T:13:22) was recorded in detail by Phillips and Rozen (1982) and re-examined by Bruder and Spain (1986) during the two inundation monitoring studies sponsored by the Corps. The site lies between 599.8 feet and 619 feet and presently is characterized almost exclusively by a single species stand of tamarisk. The site covers approximately 27 acres and contains 44 rock features and additional trails. All but one of these were recorded and mapped by Phillips and Rozen (1982). Subsurface tests were carried out at several of the rock features by Bruder and Spain (1986) with generally inconclusive results. Bruder and Spain found, through informant interviews, that an unknown number of the rock features are modern; however, they argue that at least some probably are prehistoric as well.

Also demonstrated at Rock City and several nearby sites is evidence of ground stone manufacturing activities as well as a limited amount of chipped stone production. Phillips and Rozen (1982) had reported 12 flake scatters and 10 lithic cores in association with the rock features at site PRS-16 with additional isolated flakes and cores occurring throughout the site. Bruder and Spain (1986) note that several of these scatters are somewhat more extensive than originally described. They also recovered unequivocal evidence for ground stone production in the form of mano blanks with associated manufacturing debris, generally of vesicular basalt.

Neither Phillips and Rozen (1982) nor Bruder and Spain (1986) conducted intensive survey of Rock City with the aim of characterizing surface artifact distributions. Both studies dealt with the site at some length with crew members covering and recovering most of the site area on foot

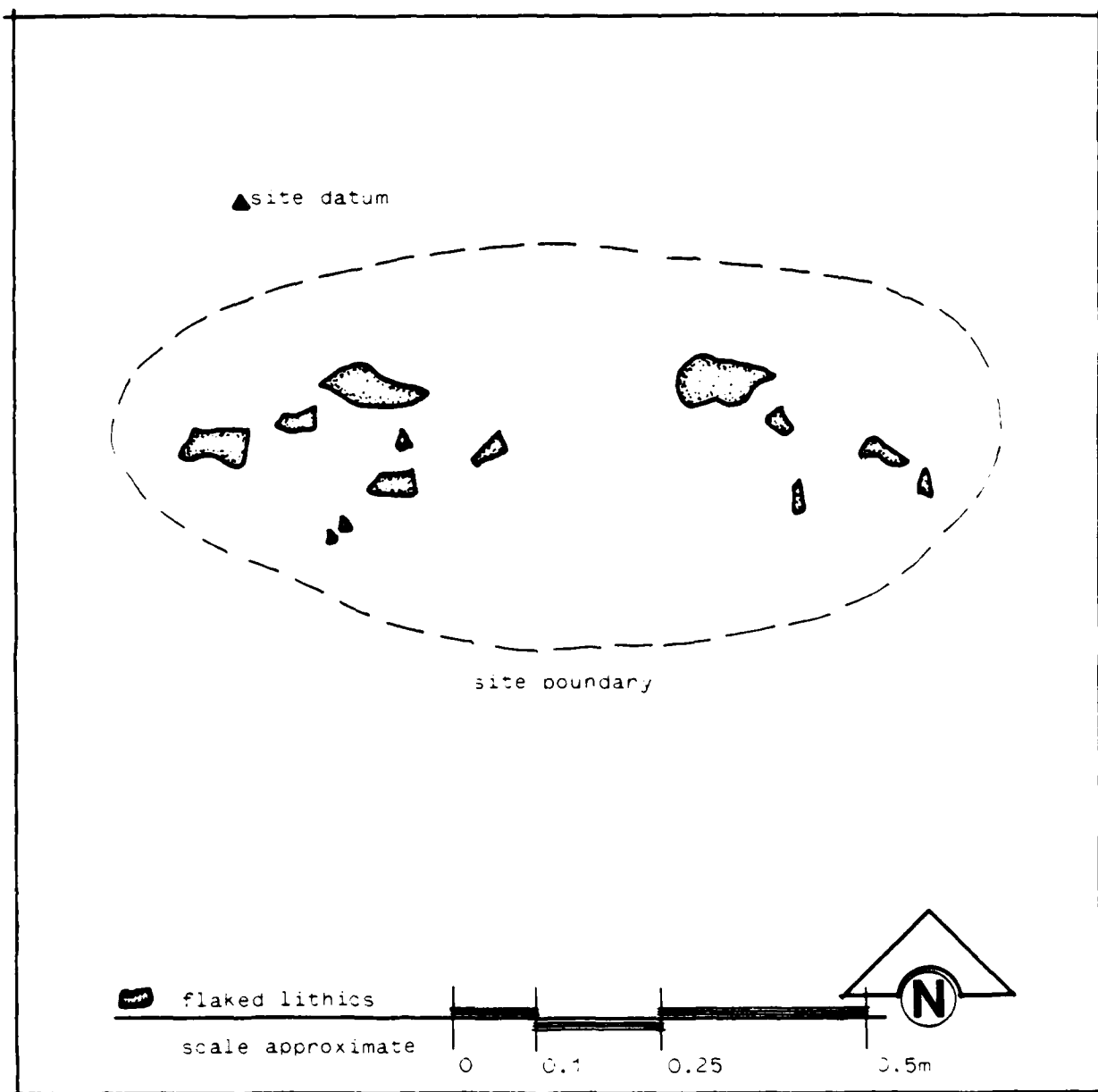


Figure 12. PRS-15, site map.

for several day field sessions. As part of the present study, four north/south transects were walked in order to systemically gather data on surface artifact dispersal. These transects were spaced at roughly 50 m intervals. Transect 1 was located 50 m west of the site datum (see Figure 3, a site map of Rock City, in Bruder and Spain 1986). Transect 2 was located right at the datum. Transects 3 and 4 were 50 and 100 m east of the datum.

No surface artifacts were observed on Transect 1. Four artifact loci were encountered on Transect 2 including 1 medium grained, non-vesicular basalt flake; 2 vesicular basalt primary flakes; 2 vesicular basalt chunks; and 2 vesicular basalt secondary flakes. Found on Transect 3 were 1 large tertiary vesicular basalt flake; and another ground stone manufacturing locus with 1 primary flake, 4 secondary flakes, and 1 chunk, all of vesicular basalt, plus a hammerstone. The hammerstone is composed of a fine grained igneous material and measures approximately 15X7 cm. It is a rounded rectangular shape and exhibits battering at both ends with bifacial flake scars at one end. Probably these represent flakes unintentionally driven off during use. The result of a single flaking episode was observed on Transect 4. This is a large medium grained basalt core surrounded by 9 flakes.

The results of these systematic surface observations at PRS-16 tend to confirm previous impressions. Both chipped and ground stone manufacture was taking place at the site, but it was not a concentrated or intensive activity. Rather, the abundant basalt resource appears to have been used as needed but with no particular spacial focus. It is, in fact, probable that evidence for lithic manufacturing activities occurs throughout Zone 2 where basalt boulders and cobbles are plentiful. Thus, it is not known whether these surface artifacts should necessarily be regarded as associated with the rock features. Possibly the association is only incidental. At least two examples of ground stone manufacturing debris have been found away from any obvious rock feature association. One of these was encountered during the present study. The other is AZ T:13:24 (Bruder and Spain 1986). Alternatively, LBF-1, reported herein, is a ground stone manufacturing locus with an associated rock pile. Clearly these phenomena require further study.

3.1.17 Site PRS-17 (AZ T:13:35)

Site PRS-17 is a small circular depression with an associated lithic scatter that was not relocated by the 1986 work effort. A 200X200 m area in the mapped site location was searched with negative results. The site was recorded as being 15X15 m in size with the circular depression measuring 6 m in diameter (Teague and Baldwin 1978:29). Lithics consisted of seven chert flakes. The site is situated at an approximate elevation of 638 feet on a terrace on the northern side of the Gila River. The area was thoroughly inundated, and a thick tamarisk jungle thrives in the location now, making accurate access to the site area difficult.

3.1.18 Site PRS-18 (AZ T:13:36)

Site PRS-18 is a rock feature site consisting of five stone circles and a few associated lithics (Figure 13). The site is found on a pediment surface on the northern side of the Gila River at an approximate elevation

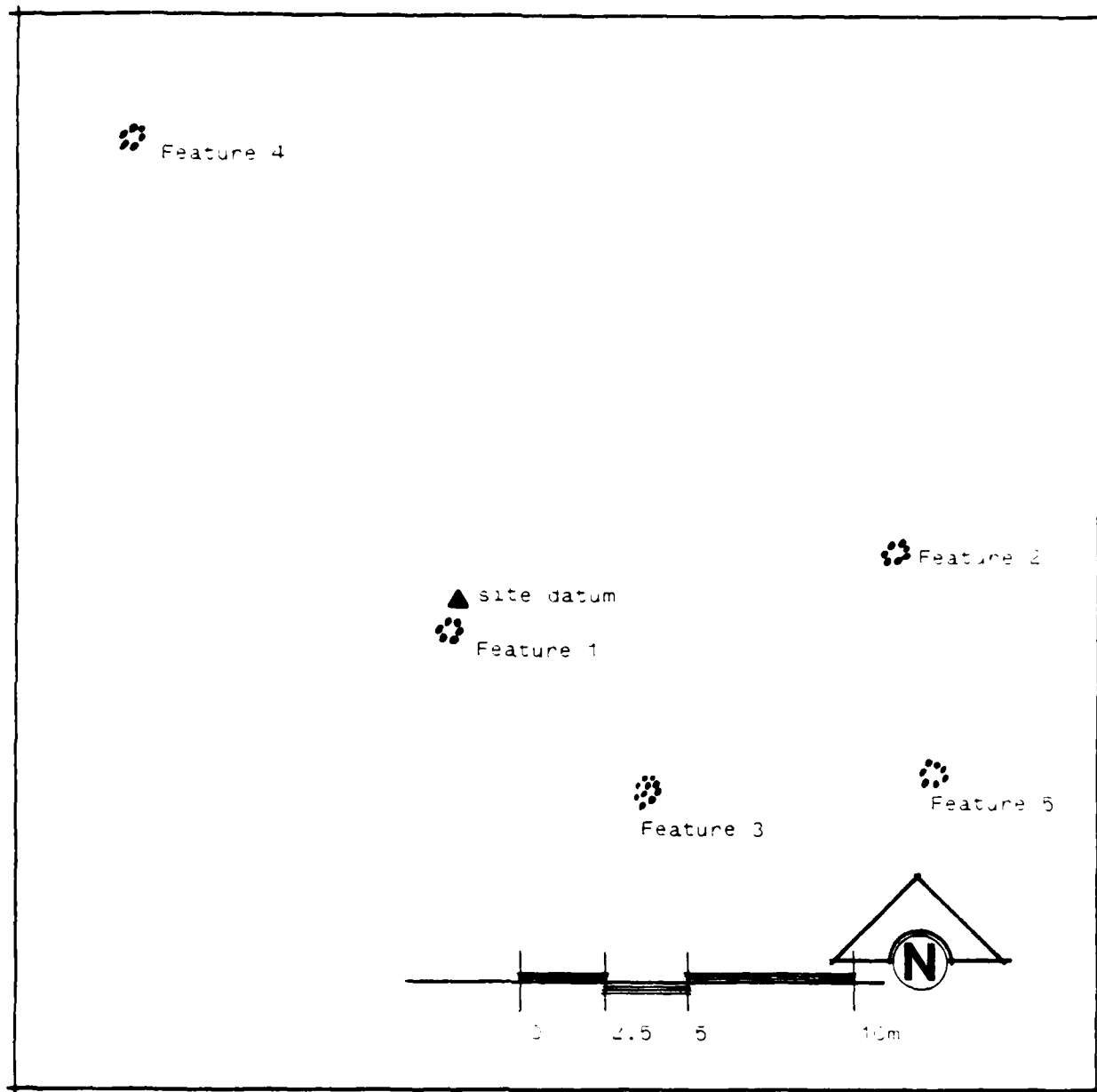


Figure 13. PRS-18, site map.

of 638 feet. Prior to inundation the site lay in a characteristic desert scrub landscape, but today tamarisk 1.5 m tall chokes the area. The site lies below the current reservoir shoreline.

In the 33X13 m area of site PRS-18 there exist five stone features, labeled Features 1-5, 2 primary flakes, a core tool, and a mano blank. Feature 1 is a 3X2.5 m subangular rock enclosure (Figure 14). It consists of 74 perimeter rocks that range in size from 10-60 cm (30 cm average). Caliche development is good on the underside of the clasts, but no caliche is exposed. The rocks utilized are essentially rhyolite with a few vesicular basalt, and desert varnish has been partially destroyed, presumably as a result of inundation.

Feature 2 is a rock circle approximately 5X4 m in size (Figure 15). The mano blank and two flakes were found in association along the southern perimeter. The circle outline was made with 85 perimeter rocks that range in diameter from 10-40 cm with a mean of 27 cm. Like Feature 1, the rocks are mostly rhyolite with a few vesicular basalt, and caliche is well developed on undersurfaces but not exposed. Darkly varnished cobbles are evident in the eastern one-half of the feature while the western one-half exhibits mixed degrees of patination from marginal to well-developed.

Feature 3 is a circular pile of approximately 50 rocks and 1 core tool that is about 2.5 m in diameter (Figure 16). The rocks are mostly rhyolite, with a few vesicular basalt, and they range in length from 15-50 cm with a mean between 20 cm and 25 cm. In the eastern one-half, rock surfaces with well-developed caliche have been exposed whereas in the western one-half the caliche coated surfaces face the ground. About 25% of the clasts show variable degrees of varnish formation. The one core tool is a cobble with bifacial flaking on one edge.

Feature 4 is a 5.5X3.5 m oval rock ring composed of approximately 95 clasts in the 10-35 cm length range with most being 15-30 cm long (Figure 17). Exposed caliche can be seen in the vugger rock clasts indicating that once exposed, caliche has been almost thoroughly eroded away. Caliche occurs on the undersides of the rocks. Some varnish is present on the exposed rock surfaces.

Feature 5 is a marginally disarticulated rock ring that is 4.5 m in diameter. Rhyolite and vesicular basalt clasts 10-50 cm in length, with a 25 cm average, are clustered in a circular pattern. Caliche development is found on the undersurfaces of the rocks, and little desert varnish is apparent on the exposed surfaces.

Teague and Baldwin (1978:30) originally recorded the site to be 100X30 m with four rock circles. The site area has been reduced and another feature added during the 1986 investigations. The rocks were found to be composed of rhyolite rather than basalt cobbles in the majority, and a few artifacts were found in association.

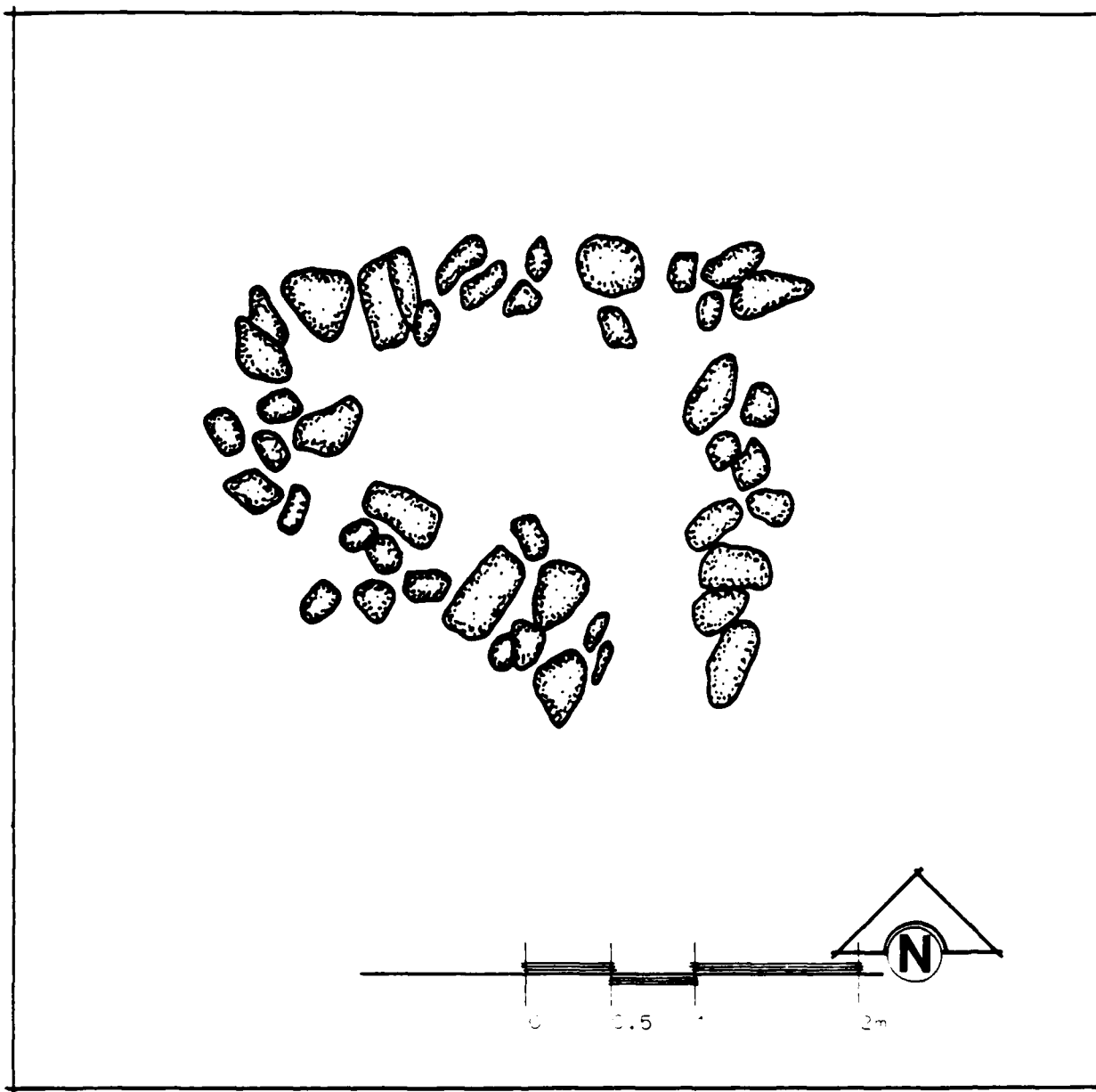


Figure 14. PRS-18, Feature 1, plan view.

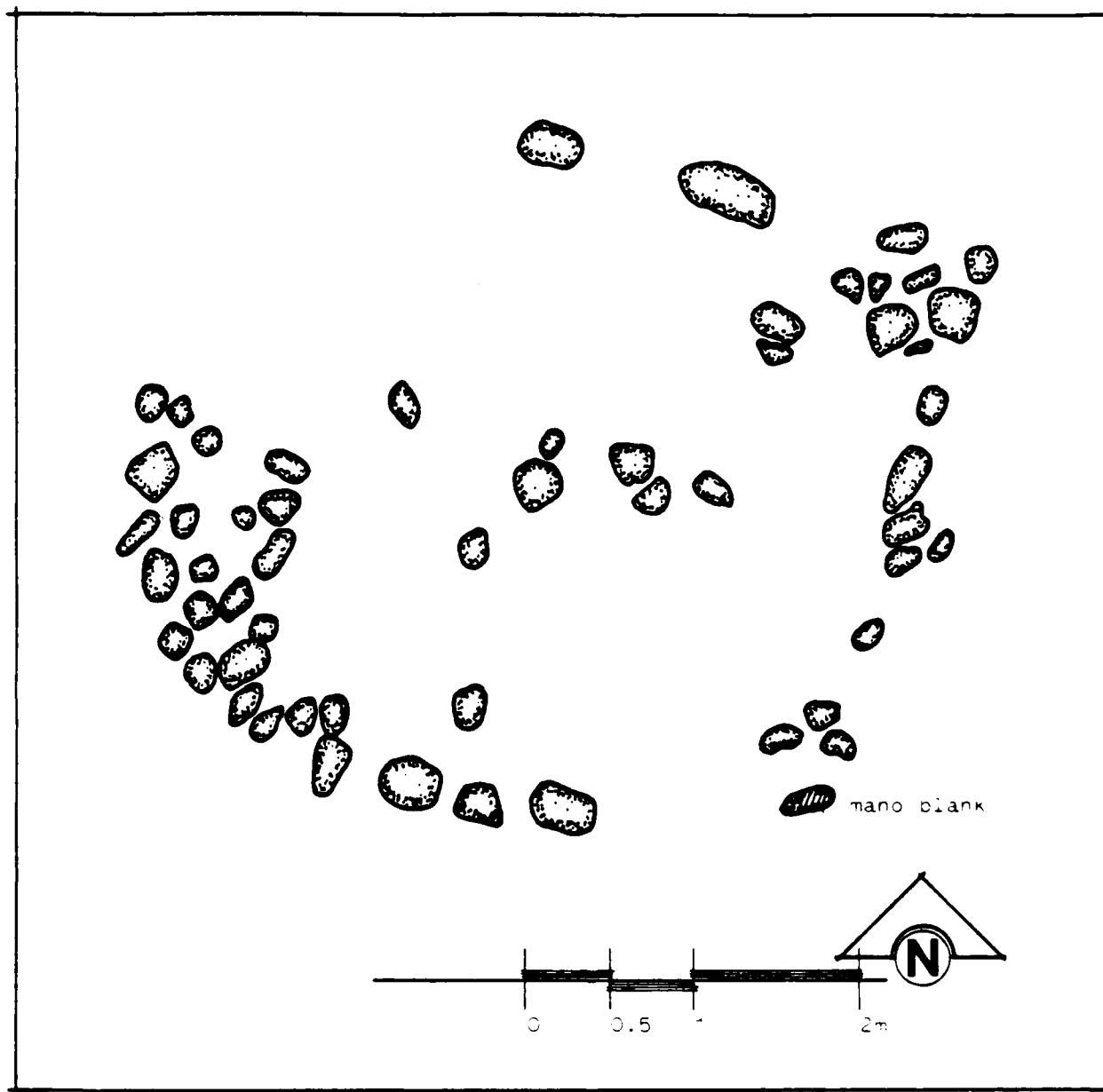


Figure 15. PRS-18, Feature 2, plan view.

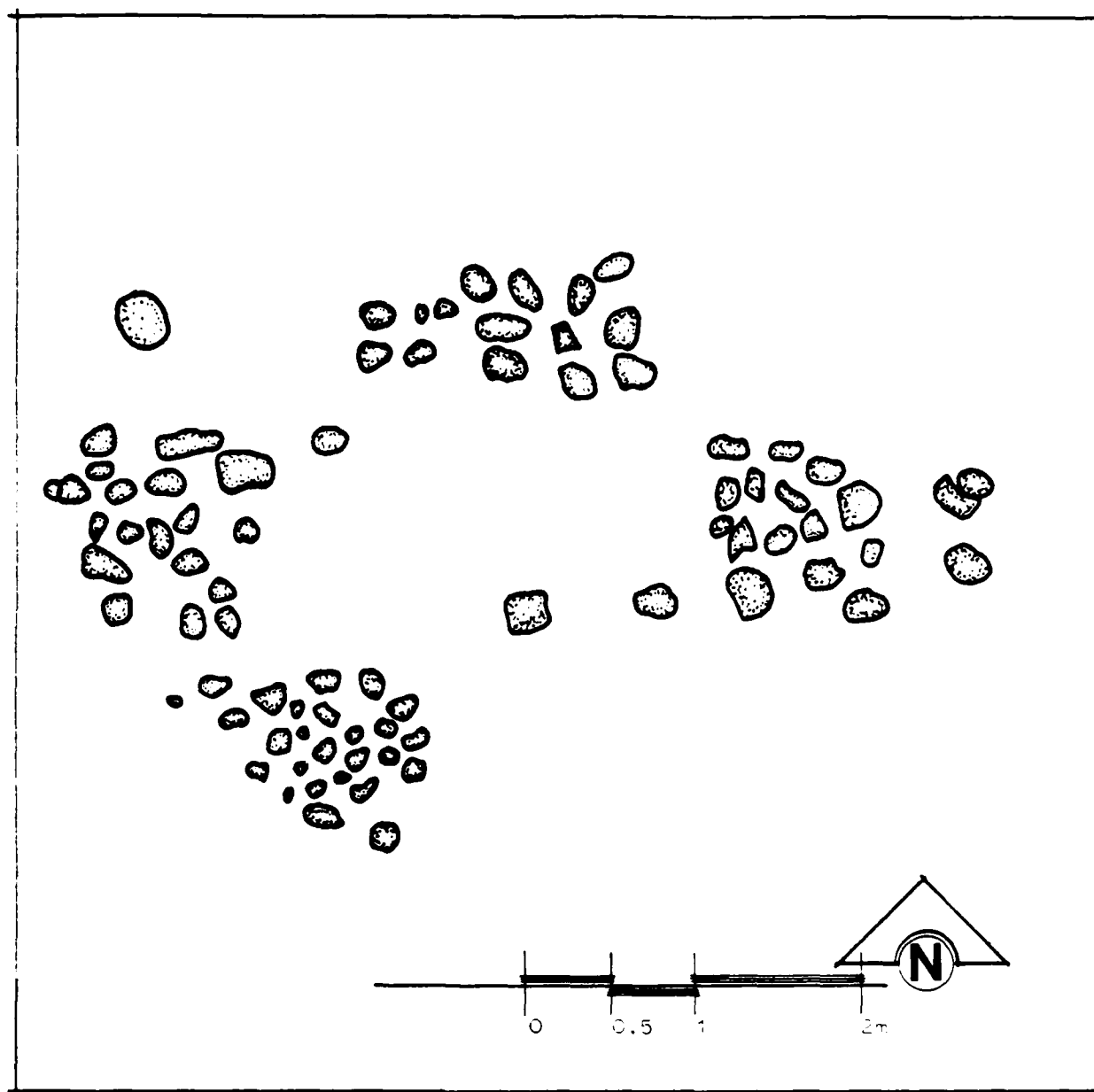


Figure 16. PRS-18, Feature 4, plan view.

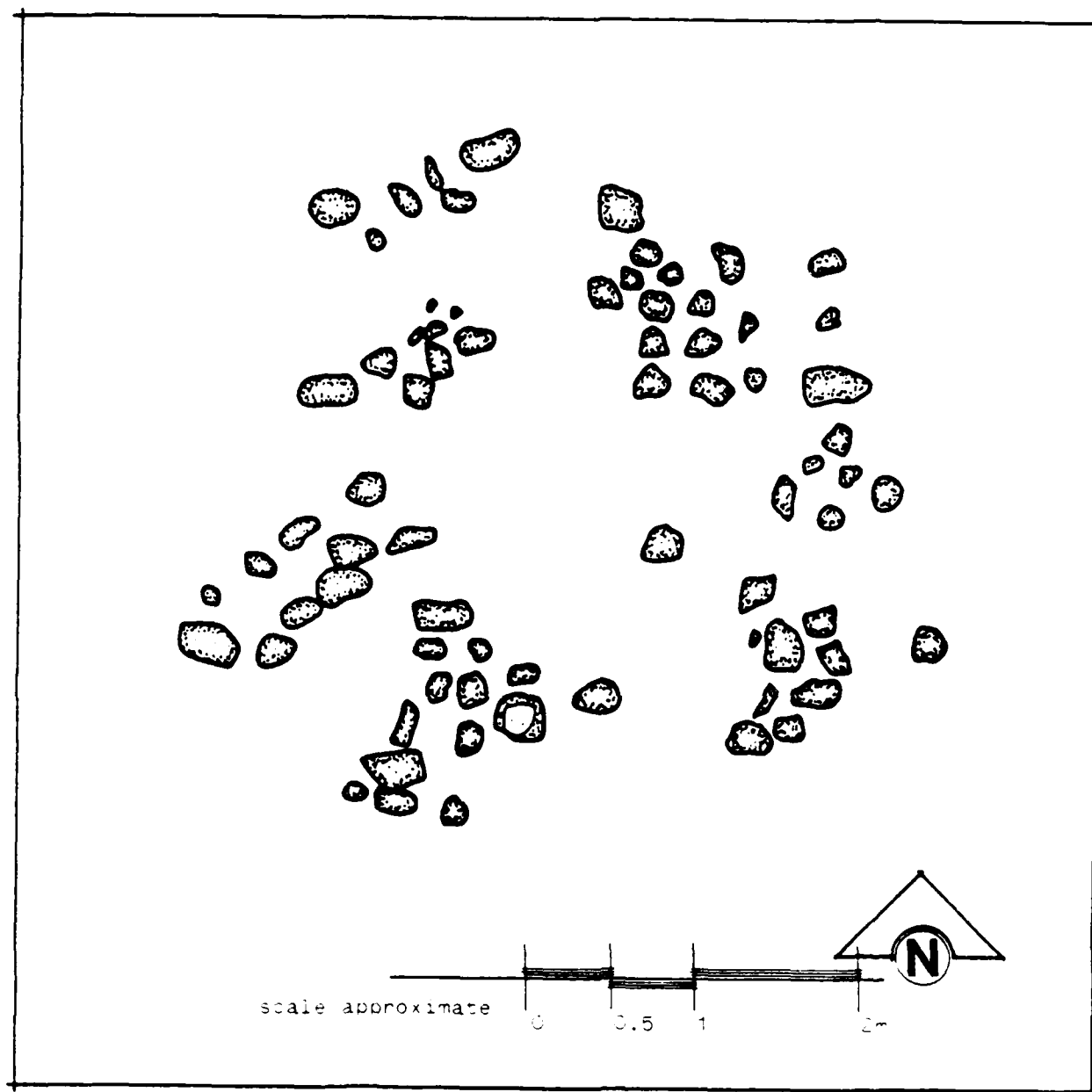


Figure 17. PRS-18, Feature 5, plan view.

Inundation has adversely affected the site in changing the resource's environmental setting from creosote-mixed paloverde floral associations to tamarisk. Tamarisk is an invasive growth, and access to the site vicinity is being further curtailed with the passage of time.

3.1.19 Site PRS-19 (AZ T:13:37)

Site PRS-19 is a rock ring site with two associated lithics. It is situated at 615 feet elevation on a pedimented river terrace on the northern side of the Gila River. The site surface is covered with an open boulder mosaic interspersed with lag gravels. Little desert varnish is seen on the lag gravels, but the boulders exhibit light to heavy varnish development. Many of the large gravel and cobble sized clasts and some of the boulders have been overturned, presumably by wave action. The site's vegetational setting was creosote bush shrub when recorded in 1978, but today it lies within tamarisk woodland due to the effects of inundation.

Site PRS-19 is approximately 3 m² in area. The stone circle, labeled Feature 1, is 1.75 m in diameter, and it is composed of rhyolite and basalt clasts that range from 13-100 cm in length, with an average of 28 cm (Figure 18). The alignment is slightly elongated along a NE-SW axis. Caliche is on the undersurfaces of the feature rocks except for the largest clast which has caliche on the west facing surface. Two artifacts, a core and a flake of the same fine-grained igneous material, were found associated with the feature along its southern perimeter.

With the addition of the core and the marked change in vegetational setting, the site description matches that presented by Teague and Baldwin (1978:33-34). Inundation has not had any great effect on the feature itself, but access to it and simple direction reckoning during location has been severely hampered by the growth of tamarisk.

3.1.20 Site PRS-20 (AZ T:13:38)

Site PRS-20 is described as a small rock ring feature on a desert pavement covered terrace surface on the northern side of the Gila River near site PRS-17. Neither site could be relocated during the 1986 investigation due to the dense tamarisk growth that has invaded the area since reservoir inundation. A 150X100 m area was searched intensively and surrounding environs also explored with negative results. The site contained the single feature, approximately 1 m in diameter with no associated artifacts (Teague and Baldwin 1978:34), and it is situated at an elevation of 600 feet. The site environment prior to inundation was creosote bush scrub.

3.1.21 Site PRS-21 (AZ T:13:41)

Site PRS-21 was recorded as a rock feature site associated with a small boulder with petroglyphs some 20 m distant from the features (Teague and Baldwin 1978:25). A 100X200 m area in the mapped site location was surveyed, but the site was not relocated. The topography is unambiguous in this area, and the field team was reasonably certain they were at the mapped location. A number of potential features were observed, but none were clearly cultural in origin and none had petroglyphs situated nearby. The thick tamarisk growth in the area hampers site access and visibility.

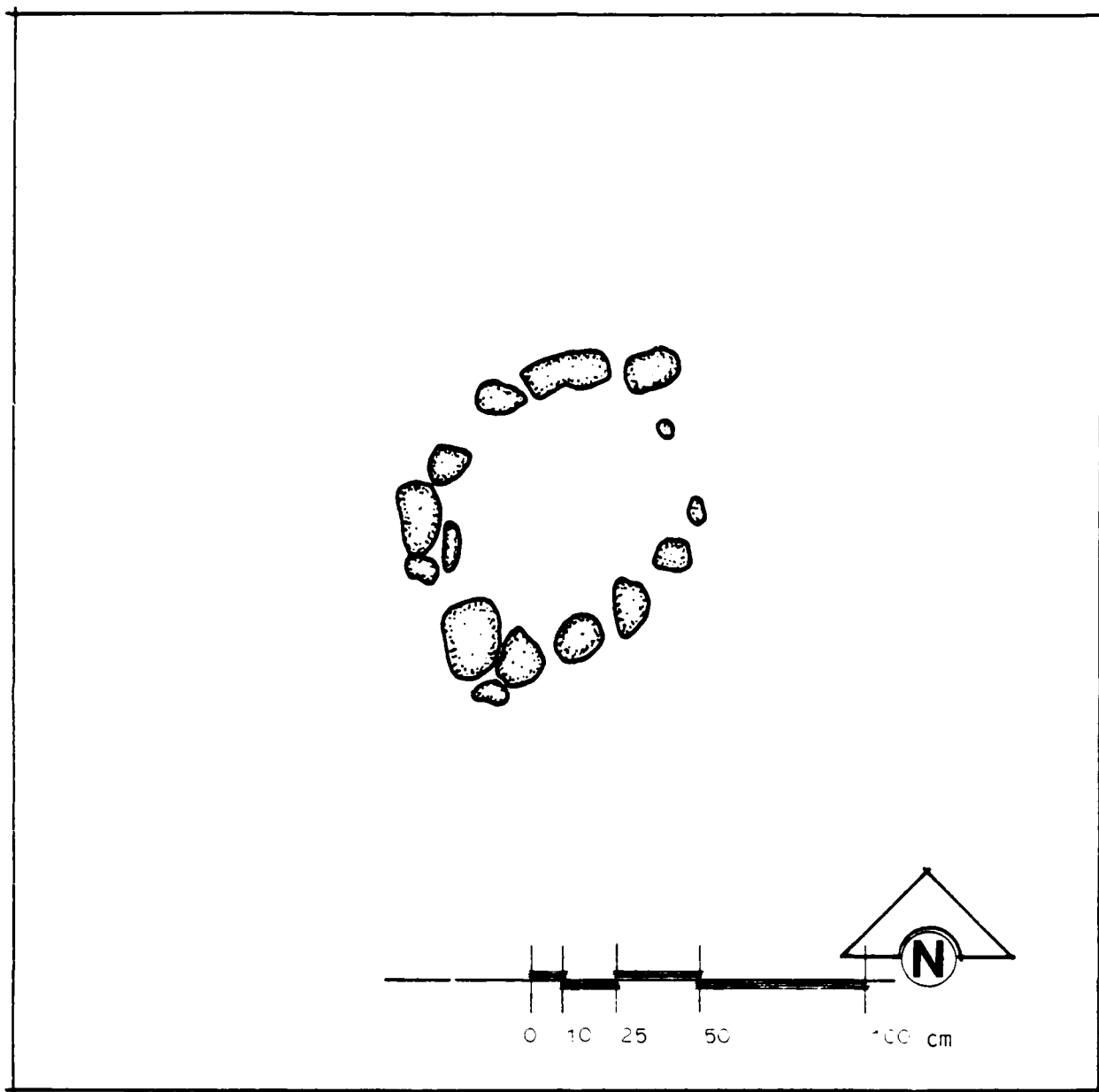


Figure 18. PRS-19, Feature 1, plan view.

Site PRS-21 was recorded as occurring at approximately 640 feet elevation in the creosote bush scrub community. The property consisted of a roughly circular set of stones and a rock alignment found on an inclined terrace finger that jutted into the reservoir from the northern side of the Gila River. The surface sloped into the water and had reportedly suffered erosional damage by 1978 (Teague and Baldwin 1978:25). Both features may have been several tiers high.

Recent inundation of the reservoir may have caused further site attrition. The dense tamarisk growth made site access and survey difficult.

3.1.22 Site PRS-22 (AZ T:13:30)

Site PRS-22 is a rock feature site (Figure 19) situated on a pavement-topped knoll, an erosional remnant of the bajada, on the northern side of the Gila River near site PRS-23 (AZ T:13:30), to which it is connected by a trail. Initial data on the site were reported by Teague and Baldwin (1978:25). Phillips and Rozen (1982) later documented the 75X25 m property in greater detail during an intensive survey effort aimed at assessing the effects of inundation on rock alignments and other remains. During this latter effort, the eight rock features were documented and sketched. Additional site attributes include petroglyphs, a chipping station of 100 flakes near Feature 1, other lithics, a glass scatter, 10 Papaguerian brownware sherds, and the trail.

Site PRS-22 lies at an approximate elevation of 662 feet on a 15 m high flat-topped knoll. It has been adversely effected by inundation and vandalism. Features 3, 5, 7, and 8 had pothole excavations, and two of the original four recorded petroglyphs may have been removed between 1978 and 1981 (Phillips and Rozen 1982:65). Wave action has destroyed the trail segment between sites PRS-22 and PRS-23 in many places. The tamarisk growth hinders site access, but the property itself, being slightly more elevated, is free of tamarisk.

The 1986 investigation observed no damage to the site itself through inundation. The trail has virtually been destroyed, and the flora of the surrounding environs has been altered dramatically. Additional damage to the features was observed, however. Feature rocks were employed to emplace a photographic marker amongst the features for the 1985 aerial photo series. The 1986 team also recorded a few additional artifacts, a quartzite cobble core and flakes, two hammerstones, and a mano blank of vesicular basalt.

3.1.23 Site PRS-23 (AZ T:13:31)

Site PRS-23 (AZ T:13:31) is a rock ring site located just to the west of site PRS-22 in a very similar environmental setting. It is situated at an approximate elevation of 645 feet on a pavement-topped knoll, a bajada remnant, that rises 10-15 m above the surrounding terrain. While the original site environs were creosote bush scrub associations, today tamarisk has invaded the site due to reservoir inundation. The site has

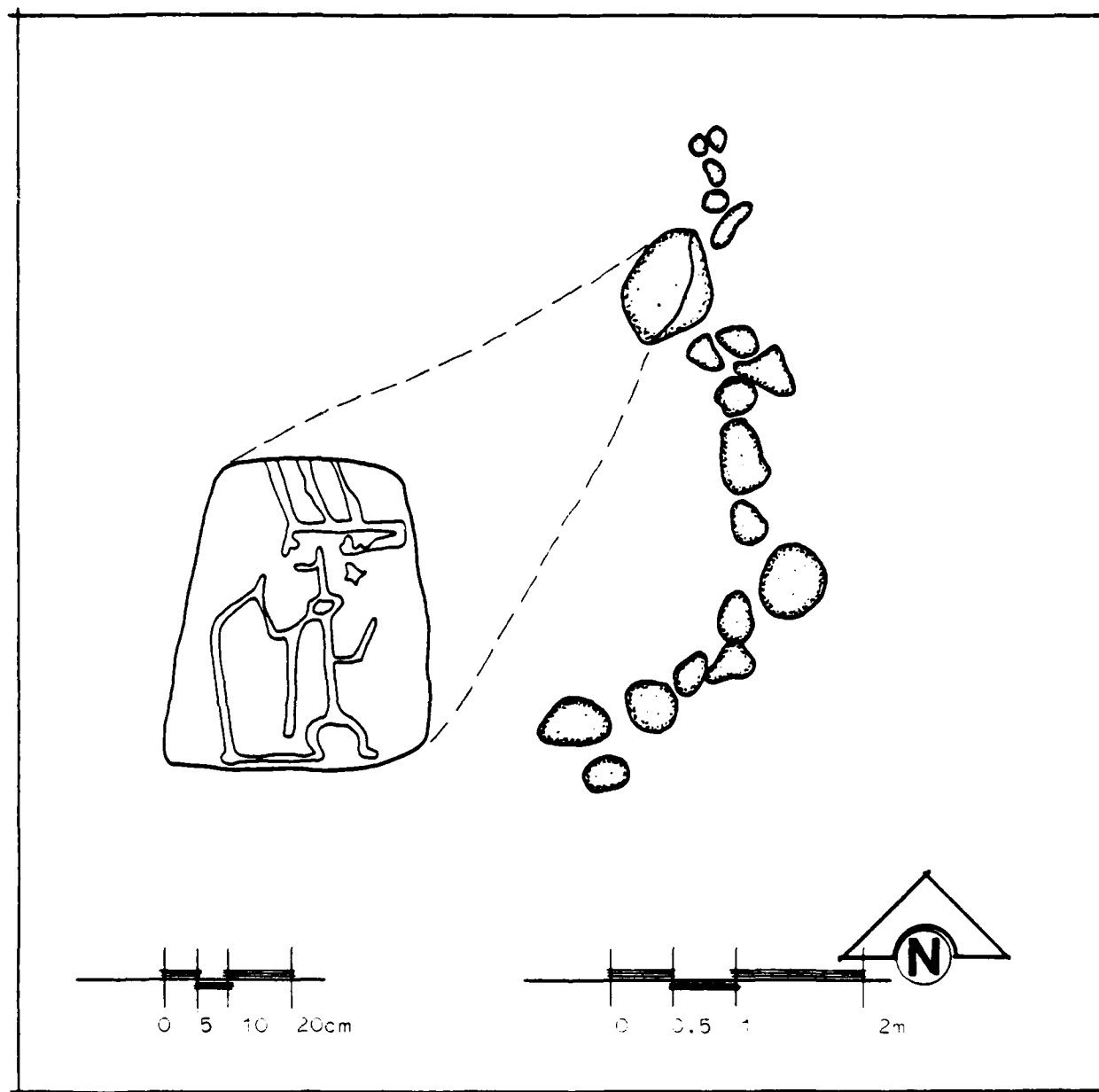


Figure 19. PRS-22, rock alignment with petroglyph panel inset.

been treated in the same manner as site PRS-22. It was originally found during the 1978 sampling survey effort (Teague and Baldwin 1978) and later documented in some detail during the 1981 effort to determine the effects of inundation on rock feature sites (Phillips and Rozen 1982).

Site PRS-23 was originally described as containing "large rock rings, alignments, small trails, a very sparse lithic scatter, and possible artificial terraces on the north side of the site" (Teague and Baldwin 1978:34). Phillips and Rozen (1982:65) later reported that damage to the property from inundation had been extensive. The two-three rock rings originally present within the 100 m² site had all been removed except for one-half of a single feature, labeled Feature 1. The new wave-cut bank sliced this feature in half. Artifactual remains reported by Phillips and Rozen consisted of about 20 flakes of coarse-textured basalt to the northeast of Feature 1.

What remains of the site today is the single partially destroyed feature in a 1.5 m² area on the level area of the landform. The knoll has been heavily affected by the debris beach. Its periphery is terraced and small beach ridgelines have been deposited in some areas. Wood and vegetation debris cover the knoll, obscuring the surface in some areas. It is obvious that boulders and cobbles have been overturned by wave action. Considering the effects to site integrity that have been experienced it is unlikely that the site will provide additional significant data outside its location and its connection to site PRS-22 and other sites in the region through a trail system.

3.1.24 Site PRS-24 (AZ Z:1:8)

An extensive artifact scatter and habitation site, PRS-24, lies in a cultivated field on the southern side of the Gila River at an approximate elevation of 630 feet. It was originally recorded as site AZ Z:1:8 in 1957 by Schroeder and Ezell. The site is no longer visible from surface indications and was not relocated during the 1986 field effort. The area would have been flooded by the reservoir, and it is not known how the land was reclaimed for agriculture. Site containing soils could have been removed or buried.

Fortunately, following the site's relocation in 1978 (Teague and Baldwin 1978:27) the site was test-excavated prior to being bladed for another round of agricultural development (Teague 1981). The testing program also included site AZ Z:1:8 situated within meters of the first site but to the southeast. The sites had been previously disturbed by agricultural activities and vandalism. At the completion of the test excavations, Teague (1981:36) stated that "the range of artifacts present, the presence of a trash area (Feature 10), and reports of excavation of cremations all report that this [AZ Z:1:8] was a habitation area." Both Lower Colorado Buffwares and decorated wares and plainwares of the pre-Classic Hohokam were retrieved.

Site PRS-25 (AZ T:13:42)

See entry after site PRS-27.

Site PRS-26 (AZ T:13:43)

See entry after site PRS-27.

3.1.25 Site PRS-27 (AZ T:13:44)

Site PRS-27 is a disturbed artifact scatter situated in a disked field on the floodplain of the Gila River at an elevation of 608 feet. The site was originally recorded as an extensive sherd and lithic scatter with some ground stone and engraved and burned shell in a 400X200 m area (Teague and Baldwin 1978:27). At that time Gila plain and redware ceramics were present as were cores, biface cores or cobble tools, and primary and secondary flakes of basalt, rhyolite, and quartzite. The area had been grazed and cultivated.

The site remnant relocated by the 1986 team is approximately 50X50 m in size. A linear transect 5 m wide and 50 m long was inventoried as a control for estimating artifact density. In this transect six plainware sherds and two decortication flakes were counted, indicating an artifact density of 0.03 per 1 m² (1 per 33 m²). The pottery is nicely crafted and is brown in color with a carbon streak. The exterior exhibits polishing striations.

The site has been flooded and reclaimed for cultivation since its original discovery in 1978. An irrigation ditch cuts through the property, and a dirt road transects its southern exposure. Tamarisk is encroaching on the site from the east. Many of the original data classes recorded at this resource are no longer visible through surface observation.

3.1.26 Sites PRS-25 (AZ T:13:42), PRS-26 (AZ T:13:43), PRS-28 (AZ Z:1:17), PRS-29 (AZ T:13:45), and PRS-30 (AZ T:13:46)

Sites PRS-25, PRS-26, PRS-28, PRS-29, and PRS-30 were not successfully relocated during the 1986 archaeological investigations. Four of the sites lie in dense tamarisk woodland (PRS-25, PRS-26, PRS-29, PRS-30) and the remaining one has been quarried for gravels (PRS-28). All of the site locations were surveyed for cultural remains, but no sites were visible through surface observation.

Sites PRS-25, PRS-26, and PRS-28 are lithic scatters measuring, respectively, 600 m², 380 m², and 400 m². Sites PRS-25 and PRS-26 are situated near each other on the southern side of the Gila River at an approximate elevation of 620 feet. Both sites reflect prehistoric lithic exploitation activities where gravels (cobbles) from a particular geologic stratum are being procured on an opportunistic basis and tested or initially reduced on-site (cf. LBF-4). Quartzite predominates at site PRS-25 and cherts predominate at site PRS-26. Other raw materials include rhyolite and basalt. A metate fragment was associated with the scatter at site PRS-25. These sites would have been flooded during inundation. Silts may have been deposited over them, or the artifacts may have been removed.

Site PRS-28 is situated southeast of the first two on more elevated terrain, at approximately 660 feet in elevation. The scatter had a pile of cobbles associated with it when originally recorded. From the site description, it appears that this site was exploited as a quarry locale for cobbles, and that bifacial reduction with a hard hammer was the technique used to flake the cores. The site has been completely removed by modern gravel quarrying activities. The stratum containing the raw toolstone materials is the same one that is the focus of the modern quarrying activities. The stratum is composed of probable Pleistocene-aged Gila River deposits that contain many fine-grained, hard, homogeneous, and well-rounded cobbles of mostly metamorphic materials including quartzites and metabasalt (greenstone). These cobbles are common in Hohokam sites where they were used for toolstone and possibly building materials.

Sites PRS-29 and PRS-30 each define a single rock circle feature, the first subangular and the second C-shaped. These sites were recorded on the northern side of the Gila River on desert pavement surfaces at an approximate elevation of 620 feet. The site areas have been inundated, and the 1986 crew were unable to locate any surface manifestations of these sites. A thick tamarisk woodland inhibits pedestrian survey, and silts mask the original ground surface. Site search requires breaking trail through the vegetation. The sites are small enough in area, about 1 m in diameter, to have been missed since the tamarisk prohibits view of any of the landscape except that portion immediately at one's feet.

3.1.27 Site LBF-1 (AZ T:13:39)

Site LBF-1 is a probable Hohokam habitation site of the Pioneer or Colonial period. It was found accidentally while thrashing through the tamarisk woodland in search of site PRS-19. Detailed measurements or artifact densities were not recorded nor was a datum placed at the site, and no sketch map was made. Based on the best estimation, it is felt that site LBF-1 lies within 100 m of its mapped location.

Site LBF-1 is situated at 620 feet elevation on a flat-topped, 150 m wide interfluvial ridge that resulted from downcutting of the pediment by deep (25 m) stream channels. The ridge is covered by an unpatinated gravel lag deposit. A deposit of well rounded metamorphic stream cobbles and gravels, similar to those found along the southern bank of the Gila River (e.g., site LBF-2) occur 100-200 m southwest of the site.

The cultural resource is approximately 110(N-S)X120(E-W) m in size and contains a wide range of feature and artifact classes. Rock piles (5+), stone alignments (3), and stone circles (3+) occur as do two tentatively identified pithouses and three possible roasting pits. Incised sherds of the Pioneer/Colonial period were observed with other ceramics. Pottery is estimated to comprise 50% of the artifact assemblage. Cores, cobble tools, and flakes of the dense metamorphic toolstone were observed. A mano and ground stone manufacturing flakes were also recorded.

A variety of features cover the low ridgetop. The westernmost feature is a large circular depression about 4-5 m in diameter. A continuous berm of sediment encloses this feature, and surface artifacts are present. Three or more collapsed rock enclosures, circular features that would have been several tiers high, occur on the ridgetop. In the southern portion of the site there is a two-tiered rock ring with an interior diameter of 1 m. Rock piles, roughly 1-3 m in diameter, extend around the perimeter of the property. They have a low density artifact scatter in association. Along the eastern face of the ridge are several rock alignments that may represent agricultural terraces. Three were estimated to cover a 30 m strip of the ridge slope running in a north-south direction. Some inconclusive evidence of pothunting is present on the ridgetop.

At the northwest extension of the site is a concentration of small depressions (3-4 m in diameter) associated with rock rings. These depressions may be pithouses. The two rock rings are oval in outline and approximately 1x2 m in size. They are only a single tier high.

Site LBF-1 has been inundated, but, aside from the tamarisk growth, no obvious damage was observed. Some of the features may have been disturbed by illegal relic collectors, however, no unequivocal evidence of vandalism was noted.

3.1.28 Site LBF-2 (AZ Z:1:16)

Site LBF-2 is another lithic procurement and reduction site that was located strategically in order to harvest the fine-grained metamorphic cobbles native to the highest terrace of the Gila River. The site is situated at 640 feet on an interfluvial ridge formed in this terrace. It lies in the creosote-bursage biotic community, but tamarisk is also present. Site LBF-4 is located about 1.2 km directly to the east.

Throughout this area cultural exploitation of the terrace gravels as a raw material source has resulted in an intermittent distribution of chipping stations and other lithic scatters within a broad but definable exploitation zone. At site LBF-2, the densest cultural manifestation is a 2 m diameter chipping station with 9 cores and 20 primary flakes but other cores, sometimes associated with a few flakes, are distributed over a 20,000 m² area.

The site has been inundated and probably is somewhat disturbed. No definite damage to the feature was observed, however. It is possible that smaller flakes may have been flushed away through wave action. The greatest effect of inundation on the resource is the takeover of the natural environment by tamarisk which masks ground features and blocks vision. Site LBF-2 was located by triangulation, and it may actually lie somewhere within 300 m of its mapped location.

3.1.29 Site LBF-3 (AZ T:13:48)

Site LBF-3 is probably a Patayan habitation site that has been exposed by erosion of the Painted Rock Reservoir. The site is situated at an elevation of 605 feet, within a terrace along the edge of the Gila River floodplain. The cultural material is found primarily in beach lag gravels

in a 2X60 m long strip along the floodplain-facing edge of a hill. The hill is a terrace remnant that rises about 1.5 m above the floodplain. A few sherds were seen on the hilltop but not in the density revealed in the exposed profile. The area is currently populated with tamarisk.

Cultural materials are found in a general 60X15 m area, and 100% of the observed artifacts were inventoried during the current investigation. Thirteen Patayan potsherds and 48 lithics were seen in this area indicating an artifact density of 1 per 10-15 m². The 48 lithics consisted of 4 cores, 1 cobble tool, 32 primary flakes, and 14 secondary flakes. The common fine grained metamorphic (altered basic igneous) rock was used as the raw material.

The site has obviously been impacted by reservoir inundation: beach erosion has exposed the cultural property. Human disturbance, however, has also contributed impacts to the site. The resource sits along the edge of a cultivated field, and it is not known if the site has been breached in this area. Understand tamarisk grows nearby.

3.1.30 Site LBF-4 (AZ Z:1:15)

Site LBF-4 is a lithic exploitation site with a rock ring in association. Found in the creosote-bursage community the site is situated at approximately 625 feet on a terrace of the Gila River comprised of probable Pleistocene-aged sediments. The site is located in a 100 m² area on an undisturbed desert pavement surface. Due to its geomorphic context, the site is considered to be a surface manifestation.

Two features were recorded at site LBF-4. Feature 1 is a chipping station of three cores and seven flakes in a 1.5 m² area. Two cores are a fine-grained greenish metavolcanic (greenstone) as are all seven of the flakes. The remaining core is a more coarse-grained brown/black metavolcanic. Feature 2 is a small rock ring constructed of varnished, cobble-sized clasts derived from the surrounding pavement. Some of the clasts are caliche coated. The feature is small, approximately 50 cm in diameter by exterior measurements with a 25 cm diameter interior circle. Artifact density was estimated through the inventory of a single 1 m wide transect that was 10 m in length. Observed within this 10% sample were 6 cores and 40 flakes, 30 primary and 10 secondary.

The site is characteristic of an aboriginal pattern of lithic exploitation aimed at a specific environment. Terraces formed during periods of greater discharge, thought to be Pleistocene in age, contain an abundance of large, well-rounded metamorphic cobbles. Wherever these deposits were observed during the current project, evidence of aboriginal exploitation was present. The raw material is found at Hohokam and other sites in the Gila Bend area. These sites, considered as a research unit, are ideal for tests of the embeddedness of lithic procurement systems within subsistence networks. Refitting and staging analyses are appropriate methodologies for this research. The association of the rock ring feature with lithic procurement activities at the site may provide a point of integration with other rock feature sites in the region.

Site LBF-4 has been affected adversely by development activities and by processes related to inundation. Roads transect the site, and the property's northern edge has been exposed to beach erosion causing the formation of a number of low (30 cm high) narrow ridges.

3.1.31 Site LBF-5 (AZ T:13:40)

Site LBF-5 is a ground stone reduction site that today is situated in an immature tamarisk woodland environment on the northern side of the Gila River. At an elevation of 644 feet the property lies below the debris beach of the now dry reservoir on a pediment between two widely separated terraces ($\pm 1,200$ m) of the Gila River. The pediment has been dissected by 1-3 m deep NW-SE trending stream channels, isolating the site on a 300 m wide flat-topped interfluvium that is covered by a weakly developed gravel, cobble, and boulder pavement.

Site LBF-5 consists of three ground stone chipping stations and an amorphous rock cluster found together in a 65X35 m area. Vesicular basalt was reduced at all three chipping stations, and the local environment was probably the source of the raw material.

Chipping station 1 is a cluster of about 30 flakes and 1 large hammerstone in a 2X3 m oval shaped area. Some flakes are 15-20 cm in length but most fall into the 10-15 cm range. Chipping station 2 is a fairly circular feature, 1.5 m in diameter, wherein occur 25-30 flakes that range from 6-15 cm in length. One flake measures 12X15 cm. Chipping station 3 is larger, 3 m in diameter, and contains about 46 flakes of various sizes including one measuring 12X23 cm. The larger flakes exhibit varnish.

The amorphous rock cluster, labeled Feature 1, comprises 19 rocks in a roughly curvilinear form measuring 200X60 m (Figure 20). Local rocks were used, and caliche remnants are visible on the upper surface of one of the rocks. Caliche is present on the undersides of the feature rocks. The feature is directly south of chipping station 2.

The area has been inundated but very little physical disturbance of the site can be detected. No beach features were seen in the site vicinity. The dominant effect of inundation is the tamarisk growth which will increasingly obscure the site from view and which will limit access to it.

3.1.32 Site CBB-1 (AZ T:13:47)

Site CBB-1 is a rock feature site with associated artifacts (Figure 21) dispersed in an 8X10 area (75 m²). It is found on the northern side of the Gila River on the Gila Bend Indian Reservation at an approximate elevation of 740 feet. About 350 m south of this property lies the Fortified Hill site. Site CBB-1 is situated along a narrow level band on the eastern slope of a bajada. The ground surface is an unarmored, poorly consolidated mosaic of boulder to pea gravel sized rocks. The site environment is comprised of characteristic creosote bush scrub associations. Vegetation is generally sparse and low-lying, though saguaro and paloverde do occur.

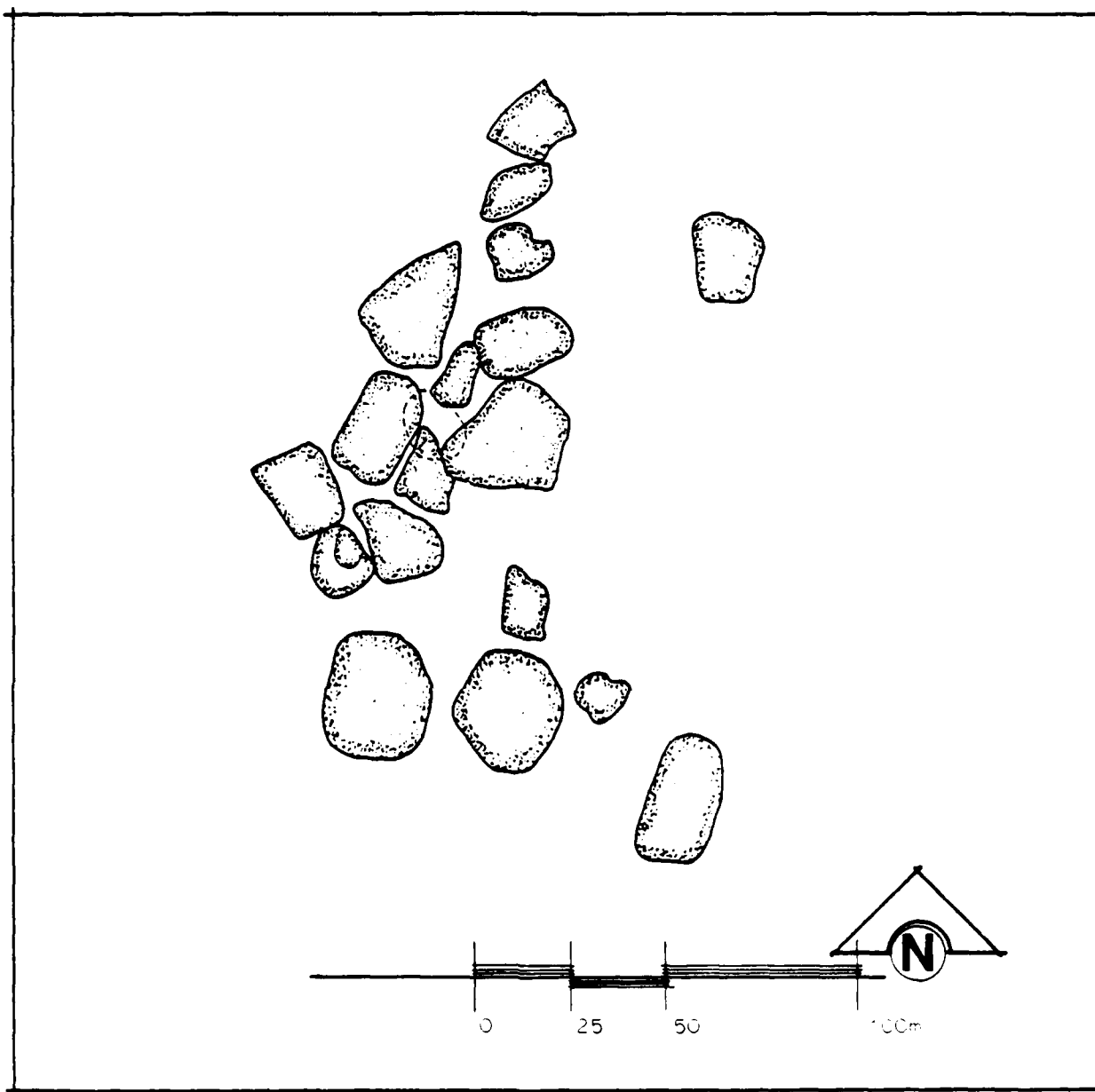


Figure 20. LBF-5, Feature 1, plan view.

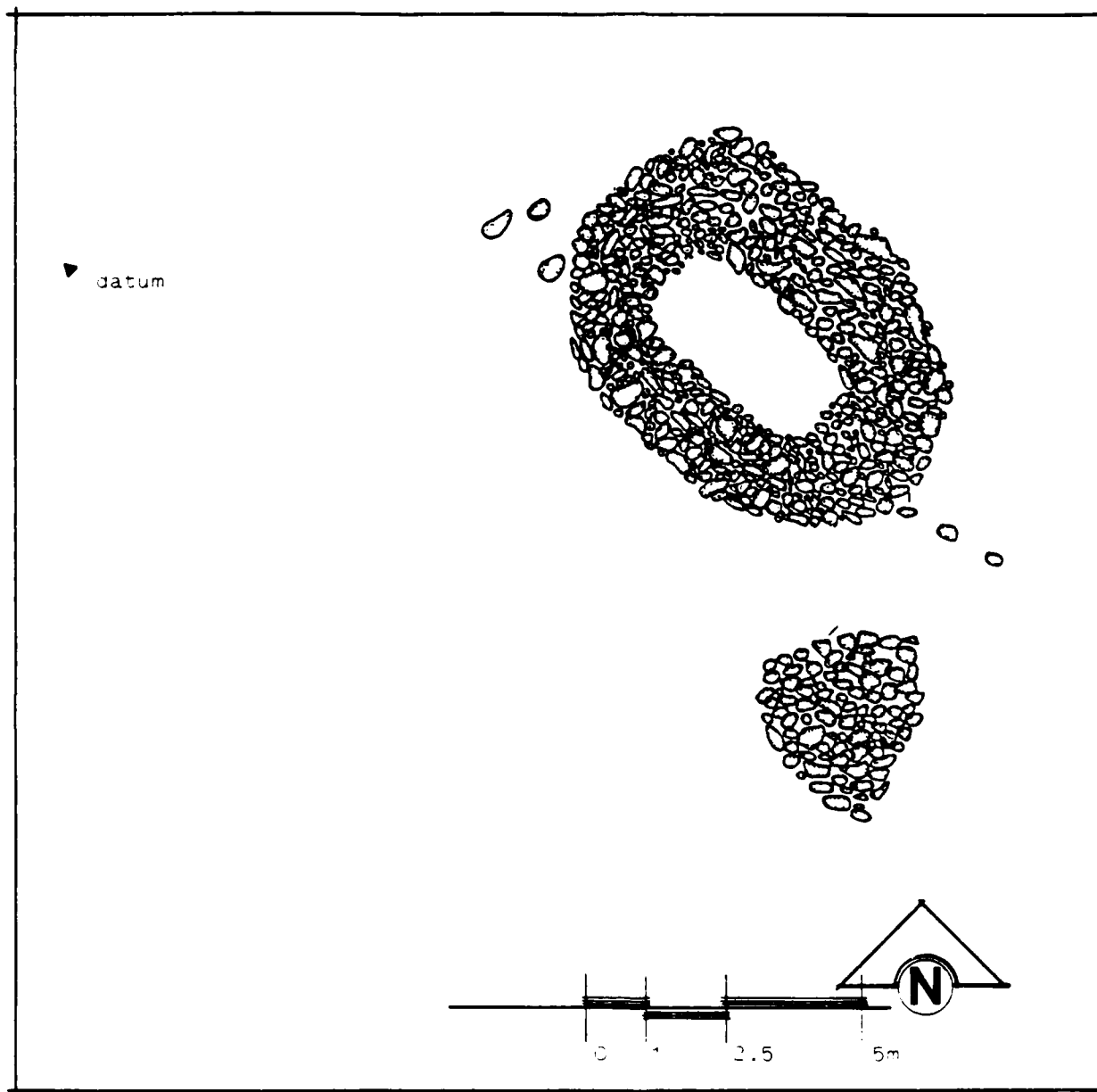


Figure 21. CBB-1, site map.

Site CBB-1 contains two rock features, one a well-formed, mounded oval ring, and the other a rock pile, with 10 Hohokam plainware sherds and 3 lithics in association (felsite, rhyolite, and the black greenstone). Overall, the rock ring site feature measures 6X7 m and is 0.5 m high. The cleared area in the center of the ring measures 2.7X1.2 m. The width of the circular band of rocks varies from 1.4X2.2 m. The rock pile is located about 1 m S-SE of the rock ring. Measuring 2X2.5 m, it is vaguely subtriangular in form. Both features are composed of piled-up cobble and small boulder sized clasts of granite and rhyolite.

The site has not been inundated and has received few other impacts. A jeep trail runs north-south just west of the site but does not impact the resource. Slight wind erosion is apparent, and a current land use, cattle grazing, causes some very mild degradation of the site environment. Except for the absence of charcoal or discolored soil, the large oval feature resembles a roasting pit. This site fits well into a research design that investigates the purpose and chronology of the many rock feature sites in the Painted Rock Reservoir. As well as testing some features to retrieve charcoal and diagnostic artifact samples for chronological control, it is important to look at the pattern of the rock rings and features across the landscape, to examine areas with higher frequencies of this site type, and to note any patterning about the organization of the rock ring sites to the major occupation or ceremonial sites of the area such as nearby Fortified Hill. It is already known that the rock feature sites cluster along the northwestern terrace of the reservoir; one was found along the southern side of the Gila River. A more intensive survey of the reservoir would undoubtedly uncover much greater numbers of this site type. The more intensive survey may also define a broader range of site locations, thereby providing additional data for the resolution of questions about the function(s) of the sites and the period of their use. The known rock features, themselves, exhibit a wide variety of form and mode of construction which may prove useful for seriation or for identification of site function.

3.2 Laboratory Analysis

During Teague and Baldwin's (1978) sample survey, limited surface artifact collections were made at 14 of the 30 sites identified. Artifacts from seven isolated occurrences also were collected. The present site recording project collected two additional items (a turquoise fragment and a projectile point). In sum, the entire assemblage contains only 219 artifacts. Teague and Baldwin do not describe how these samples were selected, but Jon Czaplicki (ASM) suggests that they were probably grab samples of material which appeared to be diagnostic (i.e., decorated ceramics) or which were unfamiliar to the Hohokam-oriented survey crew (e.g., Lower Colorado Buffwares).

Ceramics and lithics were analyzed by Bruder. Samples of Lower Colorado Buffwares were typed by Michael R. Waters, Texas A & M University. A.E. Dittert, Jr., Arizona State University, also examined several sherds. Lithic raw material identifications were provided by Barbara Murphy, Dames & Moore, and the shell was analyzed by Ann Valdo Howard.

The single historic item included in the collection was examined by Jim Ayres, Dames & Moore. This is a furniture key, as from a drawer, probably dating to the 1930s.

3.2.1 Ceramics

Pottery from 10 sites and two isolated loci were analyzed (Table 1). Hohokam buffwares were classified with reference to published type descriptions (Haury 1937, 1976) as was Wingfield Plain (Colton 1942; Opfenring 1965; Weaver 1974; Good 1976; Bruder 1982). A.E. Dittert, Jr., (Arizona State University) identified the Gila Polychrome and the "Pima" plain. Type descriptions published by Waters (1982) apply to the classifications of the Lower Colorado Buffwares. Waters' classification scheme is a similar, although somewhat simplified version of the original typology proposed by Malcolm Rogers. Papago pottery was defined according to descriptions published by Fontana and others (1962) and Bruder (1975, 1977).

A total of 157 sherds was analyzed, nine unequivocal types being recognized. A number of less distinct categories were employed for sherds which did not fall easily into established categories for various reasons.

Hohokam types identified in this assemblage are Sacaton Red-on-buff (dated to around A.D. 900-1100), unclassified Red-on-buff, and Hohokam buff. In fact, the latter two categories may contain sherds from Sacaton Red-on-buff vessels, but since design elements could not be distinguished on them, this cannot be demonstrated. All three types are from the same site (PRS-1). Gila Polychrome also is considered a Hohokam or Salado type. It dates to the Civano Phase (A.D. 1300-1450).

Wingfield Plain, which is not temporally diagnostic, is found in most areas surrounding the Gila/Salt Basin, and many investigators regard it as a Hohokam plainware. Wingfield's most distinguishing characteristic is a preponderance of schist or phyllite temper. All seven Wingfield Plain sherds in this assemblage are from site PRS-24.

Three Lower Colorado Buffware types were identified. Colorado Beige and Colorado Red are assigned by Waters (1982) to the Patayan I phase and are thought to have been manufactured from about A.D. 700-1050. Bruder and Spain (1986), however, report a C-14 date of A.D. 1290 in direct association with Colorado Beige pottery, and Huckell (1979) argues that Patayan I may have persisted to A.D. 1300. The third Patayan type, Palomas Buff, characterizes both Patayan II and III (A.D. 1000 to post-1800/1900) according to Waters (1982). A stuccoed variant of this type also was recognized. Waters' classification scheme relies heavily on vessel form. Since this assemblage primarily contains body sherds, it was not always possible to arrive at a definite type assignment. As shown in Table 1, in some cases it was not possible to distinguish between Palomas Buff and Colorado Beige or between Colorado Beige and Colorado Red. Patayan types are widely distributed within this assemblage, having been found at all 14 sites from which collections were undertaken.

A final type assignment was made to three sherds from site PRS-1 which are classed as Papago Red. Precise dates have not been assigned to this type except for the assumption that it postdates the prehistoric era.

The "Pima" plain exhibits fillets. It has some sherd and organic temper. The paste is buff to brown in tone. In the opinion of A.E. Dittert, Jr., this is early (possibly protohistoric) Piman pottery.

Table 1.

Tabulation of Ceramic Types Collected During
the 1978 Sample Survey

SITE	Sacaton Red-on-Butt	Unclassified Red-on-Butt	Hohokam Butt	Wingfield Plain	Colorado Beige	Palomas Butt	Palomas Butt, Stucco	? Colorado Beige/ Palomas Butt	Colorado Red	? Colorado Red/ Colorado Beige	Pagago Red	"Pima" Plain (Protohistoric)	Gila Polychrome	Unclassified Plain	Unclassified Red	TOTAL
PRS-1	5	5	6						16	3				4		32
PRS-2				2	4			2	6							14
PRS-5								2								2
PRS-6					25	3			3	1		2				34
PRS-8										5						5
PRS-9					4											4
PRS-10								6							4	10
PRS-13					11	1			1							13
PRS-24		8	3	7					1							19
PRS-27								5	4				2			11
Isolates																
67TCR							2									2
254TCR					4											4
TOTAL	5	13	9	7	21	30	5	15	31	6	3	2	2	4	4	157

It must be stressed that the assemblage discussed here very likely is not a representative sample. Instead, it probably contains pottery thought to be diagnostic or which was unfamiliar to the survey crew. Thus, the fact that Patayan types outnumber Hohokam wares in this assemblage probably is meaningless. The importance of this collection lies not in the frequencies of the Patayan material, but in the fact of its apparent wide distribution throughout the reservoir area.

3.2.2 Lithic Materials

A total of 49 lithic artifacts was collected from 14 sites and five isolated loci during Teague and Baldwin's (1978) sample survey (Table 2). As with the ceramics, these seem to have been collected as a grab sample of diagnostics, tools, or "exotic" raw materials: only a very few items were collected from any one site.

Raw materials include basalt (and/or greenstone which is a metamorphosed form of basalt), unknown igneous, chert, mudstone, quartzite, chalcedony, and obsidian (Table 3). River cobbles appear to have been a common source material, and none of these raw material types are unexpected in the reservoir area. An obsidian deposit in the Painted Rock area is known to have been one of the sources of supply for Hohokam sites in the Gila and Salt River valleys (Steve Shackly, personal communication 1986).

All of the items in this assemblage are chipped rather than ground stone. Unutilized items include cores; primary, secondary and tertiary flakes; and chunks and shatter which do not exhibit definitive flake morphology but which do appear to be the result of knapping activities. Tools include core choppers and scrapers, a scraper made on a flake, and two projectile points. The points are illustrated in Figure 22. The whole point from PRS-13 is made of obsidian; the fragment from PRS-5 is chert. This fragment appears to be similar to those from Sedentary and Classic period Hohokam sites in south central Arizona (e.g., Rodgers 1977, Bruder 1982). The whole point is almost identical to several illustrated by Sayles (1937) from Sacaton Phase contexts at Snaketown.

In order to address the question of whether or not Archaic or even older artifacts might be represented in this assemblage, it was necessary to look for evidence of desert varnish formation within flake scars. It will be recalled that Teague and Baldwin (1978) had suggested that several of the sample survey sites might be Archaic. Phillips and Rozen (1982) and Bruder and Spain (1986) both observed core tools with varnished flake scars at AZ T:13:26 located immediately north of the present study area.

Flake scars on several of the chert artifacts had weathered to some degree, but did not exhibit any apparent desert varnish. This kind of weathering can happen rapidly and is not considered a useful temporal measure (Barbara Murphy, personal communication 1986). A light patina which may be desert varnish was observed on the flake scars of a single core chopper (Isolate 213 TCR). This is a very thin brown coating which uniformly covers the scars. It could be the result of weathering rather than true desert varnish, which is the product of microbial colonization and potentially datable as discussed by Dorn (1984). It would be more usual for desert varnish to begin in the cracks and crevasses of the flake

Table 2

Tabulation of Lithic Artifacts Collected During the
1978 Sample Survey

<u>SITE</u>	Primary Flake	Secondary Flake	Tertiary Flake	Core	Chunk	Shatter	Flake Scraper	Core Scraper	Projectile Point	Core Chopper	Core Scraper/ Chopper	<u>TOTAL</u>
PRS-1	1											1
PRS-2		3	2		1							6
PRS-5		1						1	1			3
PRS-6			1				1					2
PRS-8										1		1
PRS-9			4		2							6
PRS-10			2		4							6
PRS-13			1						1			2
PRS-17		1										1
PRS-23										1		1
PRS-24	1		2	1								4
PRS-26					1							1
PRS-27					1							1
PRS-28		4	1		2	1						8
Isolates												
24BLR	1											1
65BLR											1	1
32TCR				1								1
213TCR										1		1
No provenience			2									2
TOTAL	3	9	15	2	11	1	1	1	2	3	1	49

Table 3

Tabulation of Lithic Raw Materials of Artifacts Collected
During the 1978 Sample Survey

<u>SITE</u>	<u>Basalt or Greenstone</u>	<u>Unknown Igneous</u>	<u>Mudstone</u>	<u>Chert</u>	<u>Obsidian</u>	<u>Quartzite</u>	<u>Chalcedony</u>	<u>TOTAL</u>
PRS-1	1							1
PRS-2	3	2	1					6
PRS-5	1			2				3
PRS-6				1		1		2
PRS-8	1							1
PRS-9		6						6
PRS-10	1			2		3		6
PRS-13	1				1			2
PRS-17				1				1
PRS-23	1							1
PRS-24				1		3		4
PRS-26				1				1
PRS-27						1		1
PRS-28		1	1	6				8
Isolates								
24BLR							1	1
65BLR						1		1
32TCR				1				1
213TCR		1						1
No provenience					2			2
TOTAL	9	10	2	15	3	9	1	49

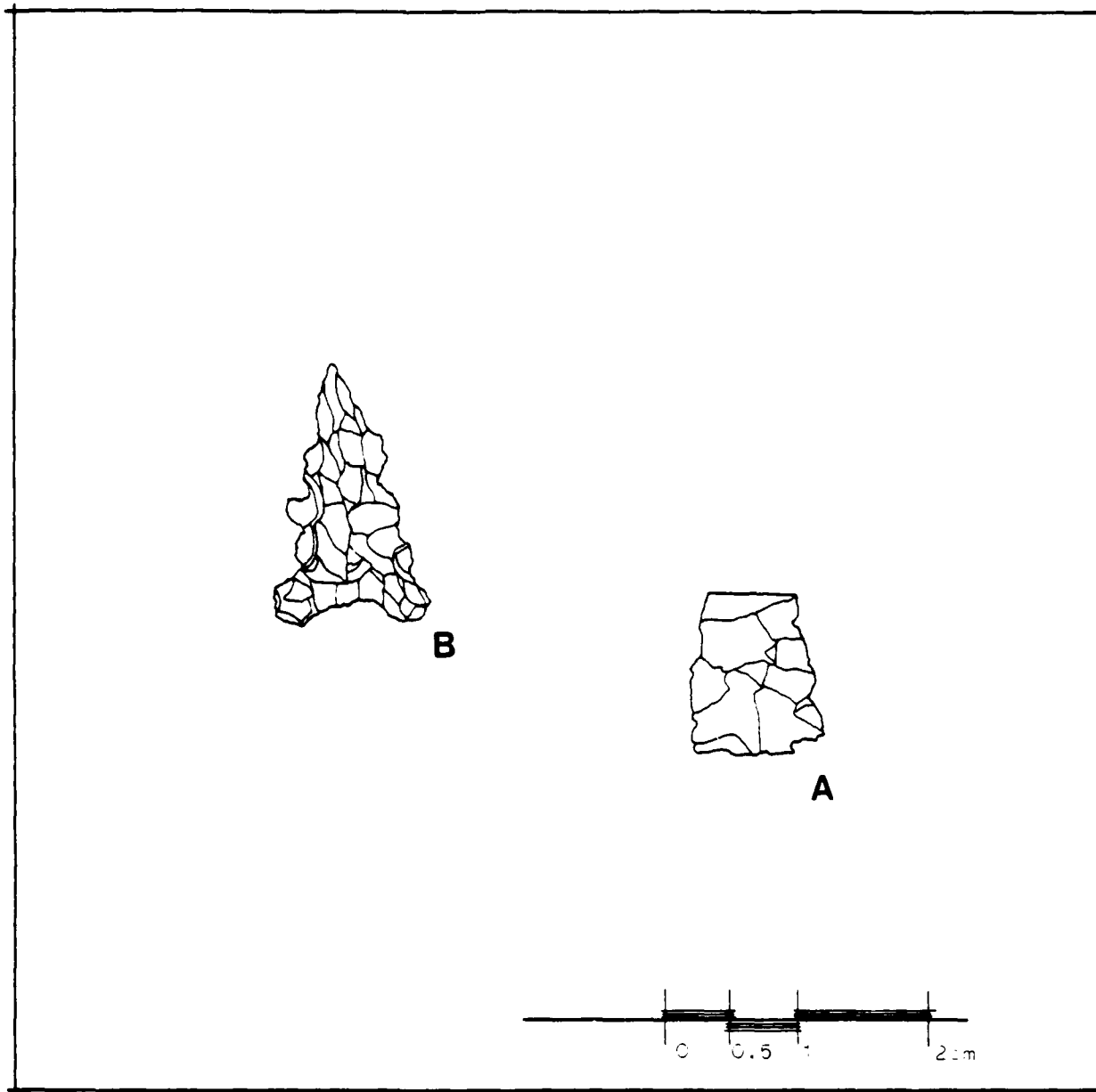


Figure 22. Projectile points collected in the Painted Rock Reservoir area; A is from PRS-5; B is from PRS-13.

scars. Nevertheless, the patina on this artifact does have somewhat the appearance of desert varnish. In any case, since this item was an isolated occurrence, even if it is varnished, it does not aid in determining the age or cultural affiliation of any of the sample survey sites.

3.2.3 Shell and Turquoise

Shell from six sites was collected during the 1978 sample survey and analyzed in 1986 by Ann Valdo Howard. This sample includes a total of 12 shell specimens representing four different genera and at least four different species as tabulated in Table 4. All are from the Panamic Province of the Gulf of California.

Of the two examples of Laevicardium elatum from site PRS-1, one is unmodified while the other is probable debitage from ornament manufacture. Neither item is burned. The other two L. elatum fragments, from sites PRS-10 and PRS-13, are unmodified and unburned.

Two Glycymeris gigantea fragments from sites PRS-24 and PRS-27, as well as three items identified as Glycymeris sp. also from sites PRS-24 and PRS-27 are included in the assemblage. Two of these (both from PRS-27) are unfinished, unburned bracelet fragments. One is a "thinning flake" removed during bracelet manufacture (site PRS-24). Another from site PRS-24 is a finished bracelet fragment fashioned in the wide band style and heavily burned, suggesting the possibility of nearby cremations. The final item, from site PRS-27, is a whole shell bead made of a juvenile Glycymeris sp. shell. The umbo is ground and perforated with chipped margins. This item is heavily burned, making it difficult to determine whether or not the margins were ground which would indicate a finished ornament.

Site PRS-24 also produced the single example of Melongena patula. This item is an unmodified, very heavily weathered spire/columella fragment. Howard suggests it may simply be beach trash. Alternatively, it may have been altered on-site as the result of inundation.

The final shell artifacts were collected from site PRS-6. Both are finished ornaments, saucer-shaped beads made of the shell of an indeterminate marine gastropod. Use wear suggests that both were worn as part of a strand as in a necklace. Neither is burned or weathered.

Local shell manufacture definitely is represented within the sample, with the unworked Laevicardium fragments most likely representing the debitage from cut-shell ornament manufacture. Evidence of Glycymeris bracelet production is well represented by the two unfinished bands, one piece of manufacturing debitage, and a possible finished band.

With the exception of the marine gastropod, the taxonomic, functional, and stylistic diagnostics within this shell assemblage are very suggestive of Sedentary and Classic period Hohokam occupations. The predominance of Laevicardium is common in Sedentary period contexts and tends to decrease during the Classic period (Volks 1983). The use of Glycymeris gigantea in

Table 4.

Tabulation of Shell Collected from Sites
Located By
the 1978 Sample Survey

SITE	<i>Laevicardium elatum</i>	<i>Glycymeris gigantea</i>	<i>Glycymeris</i> sp.	<i>Melongena patula</i>	Indeterminate marine gastropod	TOTAL
PRS-1	2					2
PRS-6					2	2
PRS-10	1					1
PRS-13	1					1
PRS-24		1	1	1		3
PRS-27		1	2			3
TOTAL	4	2	3	1	2	12

the wide band style of bracelet, as seen in the specimen from site PRS-24, is more common in late Sedentary and Classic period components (Haury 1937). The whole shell bead of juvenile Glycymeris is a style that was most prevalent during the Classic period (Nelson 1981). The marine gastropod beads are possibly very late, having been found predominantly in protohistoric contexts (Ann Valdo Howard, personal communication 1986).

A single turquoise fragment was collected during the 1986 field season from Concentration A at site PRS-1. It is an apparent ornament fragment approximately 1 cm square and 4 mm thick. The unbroken edges have been smoothed to a rounded rectangular shape.

4.0 DISCUSSION AND CONCLUSIONS

The main goal of this project was to record and map 30 archaeological sites originally identified during Teague and Baldwin's (1978) sample survey and to analyze a limited sample of artifacts collected from these sites. Several research questions we hoped to address with these data also were formulated. The ultimate aim of this project, then, is to evaluate and interpret our results in order to examine the information potential of the sites and to generate recommendations for future management of archaeological resources in the reservoir area.

A summary and evaluation of these findings are presented first, and these are followed by a specific consideration of the effects that inundation is having on historic properties within the reservoir. Management recommendations which stem from these discussions are presented in the concluding section.

4.1 Evaluation and Interpretation of Data

A summary of the results of the 1986 field recording session is shown in Table 5. Of the 30 sites originally slated for investigation, nine were relocated and determined to be in reasonably good condition, although 6 had been subject to inundation (sites PRS-8, PRS-12, PRS-13, PRS-16, PRS-18, and PRS-19). The three previously recorded sites which lie above the high water line to date are sites PRS-1, PRS-2, and PRS-15. The nine sites in good condition include three multicomponent, probable habitation sites which exhibit evidence of both Hohokam and Patayan use; one very extensive petroglyph site (boundaries were not determined), which appears to be associated with the Fortified Hill site; a trail with associated artifacts also associated with the Fortified Hill site; three rock feature sites including site PRS-16, Rock City; and a small knapping station.

Eighteen of the previously reported sites had been badly damaged by inundation and/or modern cultural activities. Ten of these sites were searched for intensively and simply could not be relocated. As all of these sites occurred in heavily inundated areas, it is assumed that they no longer exist or have been so badly altered or buried by silts that they no longer are observable. However, as described in Section 3.1, survey in areas where tamarisk growth is thickest (i.e., where repeated inundation has occurred) is exceedingly difficult. Therefore, it is possible that at least a few of these sites may have been missed despite the intensive search.

Three of the damaged sites were reported by Teague and Baldwin (1978) as probable Hohokam and/or Patayan habitation sites. These are sites PRS-3, PRS-24, and PRS-27. All of these occur in inundated areas that have been reclaimed for agricultural purposes. Exactly what methods are employed in such reclamation procedures have not been determined, but in two of these cases, site surface area had been much reduced and surface artifact density diminished. At site PRS-24 no surface indications were observed. It is possible, nevertheless, that intact, subsurface remains could still be present in these three areas. The likelihood of that being the case would depend on the original depth of the site and the depth of disturbance or fill resulting from both reclamation efforts and cultivation activities.

TABLE 5.
SUMMARY RESULTS OF THE 1986 FIELD RECORDING SESSION

SITE ^a	ASM No.	CONDITION	DESCRIPTION
PRS-1	Z:2:12	good; never inundated	multicomponent, probable habitation site; Hohokam/Patayan, historic Papago
PRS-2	Z:2:13	good; never inundated	multicomponent, probable habitation site; Hohokam/Patayan/? historic Papago
PRS-3	Z:2:2	poor; severely impacted by agriculture, construction of cofferdam for Papago cemetery, and inundation; small undisturbed remnant remains	probable Hohokam habitation
PRS-4	Z:2:14	fair; site has been inundated and artifact distribution possibly disturbed	artifact scatter, possibly north edge of PRS-3
PRS-5	Z:2:15	fair; inundated and possibly disturbed by heavy equipment	artifact scatter, possibly north edge of PRS-3
PRS-6	Z:2:3	not relocated; probably destroyed or severely altered by inundation	possible Patayan habitation site
PRS-7	Z:1:19	unknown; not visited; site has been inundated	historic well
PRS-8	T:13:50	good except where south edge of site has been obliterated by inundation	trail leading to Fortified Hill site with associated artifact scatter; ?Patayan/Hohokam
PRS-9	T:13:51	unknown; site could not be reached; site has been inundated	large artifact scatter; ?Hohokam/Patayan
PRS-10	Z:1:11/12	not relocated; probably destroyed or severely altered by inundation	large artifact scatter; ?Hohokam/Patayan

TABLE 5. (continued)
SUMMARY RESULTS OF THE 1986 FIELD RECORDING SESSION

SITE ^a	ASM No.	CONDITION	DESCRIPTION
PRS-11	Z:1:18	not relocated; probably destroyed or severely altered by inundation	historic mine shaft
PRS-12	Z:14:8	good; however southern portion of site is being subject to inundation and concomitant destruction	very large petroglyph site and artifact scatter apparently associated with the Fortified Hill site; ?Hohokam
PRS-13	T:14:10	good to fair; site has been inundated	multicomponent, probable habitation site; Hohokam/Patayan
PRS-14	T:14:32	fair; site has been inundated and impacted by erosion; site covers less area today than in 1978	multicomponent, probable habitation site; Hohokam/?Patayan
PRS-15	T:13:49	good; never inundated	single episode
PRS-16	T:13:22	good to fair; site has been inundated with with probable disturbance to surface artifacts; rock features are largely intact	small knapping station, 43 rock features within a 27 acre area; associated ground stone manufacturing loci present
PRS-17	T:13:35	not relocated; probably destroyed or severely altered by inundation	circular depression (sleeping circle?) with associated lithic artifacts
PRS-18	T:13:36	good, although some artifact movement due to inundation is possible	5 rock features with a few associated lithic artifacts
PRS-19	T:13:37	good, although the site has been inundated	rock ring with a few associated lithic artifacts
PRS-20	T:13:38	not relocated; probably destroyed or severely altered by inundation	rock ring

TABLE 5. (continued)
SUMMARY RESULTS OF THE 1986 FIELD RECORDING SESSION

SITE ^a	ASM No.	CONDITION	DESCRIPTION
PRS-21	T:13:41	not relocated; probably destroyed or severely altered by inundation	2 rock features and a petroglyph-bearing boulder
PRS-22	T:13:30	fair to poor; majority of site has not been flooded; trail section, however, largely destroyed by inundation; vandals have removed all but one petroglyph-bearing boulder and dug at least 4 pot-holes; placement of aerial markers also disturbed several rock features	8 rock features, trail, petroglyph-bearing boulders and associated artifacts
PRS-23	T:13:31	poor; inundation has largely destroyed this site	rock rings, trails, possible rock alignments and terraces with sparse lithic artifact scatter as originally described; only 1 partially destroyed rock ring remains today
PRS-24	Z:1:8	unknown; site has been inundated and reclaimed for agriculture; no surface indications were observed	probable habitation site; Hohokam/Patayan
PRS-25	T:13:42	not relocated; probably destroyed or severely altered by inundation	lithic scatter
PRS-26	T:13:43	not relocated; probably destroyed or severely altered by inundation	lithic scatter
PRS-27	Z:13:44	unknown; site has been inundated and reclaimed for agriculture; surface artifacts much reduced from those reported in 1978	probable ?Patayan/?Hohokam habitation site

TABLE 5. (continued)
SUMMARY RESULTS OF THE 1986 FIELD RECORDING SESSION

SITE ^a	ASM No.	CONDITION	DESCRIPTION
PRS-28	Z:1:17	site completely destroyed by gravel quarrying activities	rock pile with associated lithic artifacts as originally reported
PRS-29	T:13:45	not relocated; possibly destroyed or altered by inundation	rock ring
PRS-30	T:13:46	not relocated; possibly destroyed or altered by inundation	rock ring
LBF-1	T:13:39	good; however site has been inundated and is in grave danger of destruction soon	possible early Hohokam habitation site
LBF-2	Z:1:16	good to fair; site has been inundated and some artifact movement is possible	lithic artifact scatter; quarry/workshop
LBF-3	T:13:48	fair; site has been inundated and subject to modern cultivation	probable Patayan habitation site
LBF-4	Z:1:15	good to fair; site has been inundated and is crossed by several dirt roads	lithic artifact scatter with associated rock ring; quarry/workshop
LBF-5	T:13:40	good despite inundation	ground stone manufacturing loci
CBB-1	T:13:47	good; site has not been inundated	2 rock features with associated artifacts; ?Hohokam

^a PRS-1 through PRS-30 are previously reported sites; LBF-1 through LBF-5 and CBB-1 are sites found during this field session.

Site condition at three of the inundated sites is judged as fair. Two of these, sites PRS-4 and PRS-5, are artifact scatters which may actually represent the northern edge of site PRS-3. How much artifact disturbance has taken place at these sites is unknown. It also is possible that site PRS-5 was damaged (or even created) by heavy equipment. The condition of site PRS-23 is considered poor, largely as a result of inundation damage. This rock feature site had already sustained severe impacts when it was evaluated by Phillips and Rozen (1982).

Site PRS-22, a rock feature and petroglyph site, is situated near site PRS-23, however, most of the site area is situated above the current high water line (649 feet). Unfortunately, site PRS-22 also is badly damaged despite its elevation. Vandals have removed all but one of its petroglyph-bearing boulders and have excavated potholes in four of the rock features. This damage also was reported by Phillips and Rozen (1982). More recent destruction occurred at the site when rocks were removed from several of the features by surveyors constructing aerial markers. A final site, PRS-28, was a lithic quarry or workshop with an associated rock pile as reported by Teague and Baldwin (1978). Today, this site has been entirely obliterated (removed) by activities associated with the gravel quarry.

Two of the 1978 sample survey sites were not visited during the 1986 field season because of logistic difficulties. One of these, site PRS-7, reported as a historic well, could not be reached by vehicle and it was decided it probably did not warrant a grueling, time-consuming walk. The other site is PRS-9, reported as a large Hohokam/Patayan artifact scatter. This site is situated in one of the most heavily inundated and therefore tamarisk-infested areas of the reservoir and there are no existing dirt roads or any other discernible landmarks anywhere near it. Because of our experiences at attempting to find other sites in similar situations close to known landmarks, it was decided that locating this site would simply not be possible within our budget and time frame.

While searching for the 30 sample survey sites, the 1986 survey crew happened upon several unreported sites and briefly recorded them after consultation with Corps Archaeologist Nedenia Kennedy. Five of these sites appear to be in good condition, and they include one possible early (Pioneer or Colonial period) Hohokam habitation site (LBF-1), two chipped stone quarries, one with an associated rock feature (LBF-2 and LBF-4), a ground stone manufacturing locus (LBF-5), and a rock feature site with a possible Hohokam affiliation (CBB-1). The sixth newly reported site is LBF-3, a probable Patayan habitation site. The condition of this site is judged to be fair as it has been both inundated and subject to cultivation.

The first and fourth research aims of this project, as outlined in Section 2.0, were to "firm up" cultural and chronological placement of the 30 sample survey sites. Two main questions are involved here: 1) are any of these sites Archaic? and 2) can the Formative era sites be temporally ordered and understood in terms of cultural affiliation (especially Hohokam versus Patayan)?

Unfortunately, virtually nothing can be added to the Archaic question by this project. Many of the potential Archaic sites (that is, the aceramic rock circle or lithic scatter sites) could not be relocated. No additional "old-appearing" (desert varnished) artifacts were observed at the properties that were found. A single core tool with possible desert varnish formation within flake scars had been collected by Teague and Baldwin and was analyzed as part of this project (Section 3.2.2). However, even if this tool is Archaic in age (and it may not be truly varnished), it does not help in dating any of these sites since it was collected as an isolated occurrence. Most of the rock features at sites which were relocated did not have caliche on their upper surfaces. As discussed by Bruder and Spain (1986), this may be an indication of antiquity, but given the environmental circumstances of the reservoir and our poor understanding of caliche formation and destruction, it is hardly conclusive.

Fourteen of the sites considered here exhibit surface ceramics indicating use by either Hohokam or Patayan groups or both (this includes several of the sample survey sites reported by Teague and Baldwin (1978) but not located by the present survey). Two of these sites (PRS-1 and PRS-2) may also contain Papago materials.

Clearly dated Hohokam decorated wares indicate Sedentary period use at sites PRS-1, PRS-2, PRS-3, and PRS-5. Most, if not all, of the additional ceramic sites appear to exhibit at least some Hohokam plainware, although as Teague (1981) notes, it is not always easy to distinguish Gila Plain, Gila Bend variety from Colorado Beige, especially in the field. The redwares reported at several sites may be Hohokam Classic redwares, but this could not be verified during the analysis as all of the redwares in the assemblage collected by Teague and Baldwin were either Colorado Red or Papago Red. Red-on-buff ceramics with incising were observed at the newly discovered site LBF-1, suggesting use by the Hohokam during either the Pioneer or Colonial period.

Teague and Baldwin (1978) report Lower Colorado buffwares at most of the ceramic sites they identified. As noted in Section 3.2.1, their field crews seemed to have a tendency to collect non-Hohokam sherds (except for decorated materials), perhaps because of their greater familiarity with the Hohokam material. Thus, although the assemblage analyzed here shows a predominance of Patayan types over Hohokam types, this may be a function of the collection strategy. In any case, the analysis does indicate that Patayan materials are widespread throughout the reservoir and that Patayan ceramics from protohistoric (perhaps even historic) as well as prehistoric phases may be present (e.g., Palomas Buff). Colorado Buffwares from the following sites were analyzed: PRS-1, PRS-2, PRS-5, PRS-6, PRS-8, PRS-9, PRS-10, PRS-13, PRS-24, and PRS-27. Palomas Buff (attributed to Patayan II and III) definitely occurs at sites PRS-2, PRS-6, and PRS-13.

With the exception of a single projectile point, which closely resembles Sedentary period points from Snaketown, the small lithic assemblage did not contain any definitive diagnostic materials. The shell analysis suggests occupation during the Sedentary and Classic periods at sites PRS-1, PRS-10, PRS-13, PRS-24, and PRS-27; and also during the protohistoric period at site PRS-6 which matches the ceramic analysis.

The artifact assemblage analyzed from the reservoir sites is very small and very likely unrepresentative. Beyond what has already been said, there is, therefore, not much to add in terms of cultural and temporal placement of the sites considered. Most of the ceramic sites appear to date to the Sedentary and possibly Classic periods with a very real possibility of extension into the protohistoric period at least in terms of some of the Patayan material and the shell from site PRS-6. As discussed further in the concluding section of this report, it is unlikely that surface collections, even larger and more systematically collected ones than were available here, are going to answer these very fundamental questions concerning cultural and temporal placement. Only excavation can do that given our current extremely limited understanding of Gila Bend prehistory, and especially of the Patayan culture.

Although a number of the properties which could not be located were "rock feature sites," several sites containing rock features were recorded including sites PRS-18, PRS-19, PRS-22, PRS-23, LBF-1, LBF-4, and CBB-1. The second research aim posed in Section 2.0 is to compare rock features with those from Rock City, site PRS-16, as described by Phillips and Rozen (1982) and Bruder and Spain (1986). Bruder and Spain (1986) demonstrated through informant interviews that at least some of the rock features at Rock City were made by modern children. Therefore, it is necessary to factor out the modern from the prehistoric features or alterations (Rock City was "available" to modern children because of the existence of an agricultural labor camp adjacent to it, while the rest of the reservoir area presumably was not).

Generally, all of the rock features recorded during this inventory are roughly round as opposed to rectangular. This also is true of the features from AZ S:16:36, another rock feature site reported by the ASM from the reservoir area (Brew 1981). In contrast, although some of the rock features at Rock City also are round, a number are decidedly rectangular. This study's findings support Phillips and Rozen's (1982) suggestion that it is the rectangular features at Rock City that are modern. This study does not, however, definitively tie down the cultural affiliation of the rock feature sites. Suggestive, however, is the occurrence of rock features at two of the properties with Hohokam ceramics, sites LBF-1 and CBB-1.

The final research aim of this project was to more definitely characterize the lithic scatter sites in order to differentiate ground from chipped stone manufacture. The 1986 survey was able to locate several of the lithic scatter sites reported in 1978 and also a number of sites with more generalized artifact scatters which included lithic materials. All of these proved to be chipped stone production loci. However, in the course of the survey we did come across several examples of ground stone manufacturing activities and, in fact, recorded one of them as a site, LBF-5.

4.2 A Consideration of Inundation Effects

The Corps has sponsored two inundation monitoring projects since the altered reservoir release schedules have been in effect (Phillips and Rozen 1982; Bruder and Spain 1986). Both of these studies looked at the

same square mile area on the north side of the reservoir. This study area incorporates the PRS-16 (Rock City) site area and extends from below 600 feet to above 661 feet. Thus, its southern extreme includes a heavily inundated area, while the northern one-third of the study zone has never been flooded.

Both studies in this area found that rock feature sites located on uneven terrain or at elevations where high water stands (with attendant beach lines) had formed were most subject to destruction. Neither study noted any evidence of silting. While both investigations were hampered by the occurrence of tamarisk, its presence did not actually preclude survey in 1981 or site relocation in 1985. Rock features situated on level ground away from beach lines were found to be in surprisingly good condition despite the fact that some of them had been inundated several times (Bruder and Spain 1986).

As described in preceding sections, the present study encountered considerably more difficulty working within the reservoir than might have been predicted on the basis of the two previous studies. The reason for this disparity is simple. The present study was required to deal with sites in areas of the reservoir where tamarisk had matured to a much greater degree than in the Rock City area. Rock City is located somewhat north of the southern boundary of the inundation monitoring study area (see Figure 2 in Bruder and Spain 1986). Since it was the southernmost site considered by that study, the inundation monitors never had to work below approximately 600 feet. In other words, although the tamarisk "jungle" in the southern half of Rock City is unpleasant to work in, it is nothing compared to the much denser stands thriving at lower elevations.

At Rock City, it was nearly always possible to walk in a reasonably straight line and usually it was possible to see the several mountain ranges which lie north, east, and west of the site area. At lower elevations this is not the case. Within the real tamarisk jungle, there are vast stretches that are literally impenetrable. Also the tamarisk has grown to such a height in these same areas as to make it impossible to sight on adjacent landmarks. These twin problems virtually preclude survey and site relocation at lower elevations within the reservoir without extensive brush clearance. A number of our target sites were not found. It is likely that at least some of these sites no longer exist or that they have been obscured by silt (also observed at these lower elevations although not observed in the Rock City area). However, it also is possible that some of them may still exist, but that they were missed because of the logistic difficulties described. This study's findings concerning inundation effects should be considered by the Corps along with those of the two earlier investigations when planning additional research within the reservoir. This issue is discussed further in the following concluding section of this report.

4.3 Management Recommendations

4.3.1 Legal Responsibilities

As discussed in considerable detail by Vogler (1976), the Corps of Engineers, the Bureau of Land Management, and the Bureau of Indian Affairs (each of which has jurisdiction over lands affected by Painted Rock

Reservoir), have legal responsibilities for historic properties located on those lands and also on private property affected by the reservoir. Public Law 91-100, the National Environmental Policy Act, Section 101 requires that cultural resources be considered as part of the natural environment which is important to maintain or restore if necessary for the general welfare of the nation. Section 102 directs all federal agencies to develop methods to make certain that presently unquantified environmental (and, by definition, cultural) resources are given consideration in decision-making.

An obvious first step in considering cultural resources is to quantify and describe them so that informed value judgments are possible in dealing with circumstances where they are subject to potential adverse effects. To this end, Executive Order 11593, Protection and Enhancement of the Cultural Environment, requires that federal agencies 1) compile an inventory of cultural resources for which they are trustee; 2) nominate eligible properties to the National Register of Historic Places; 3) preserve and protect their cultural resources; and 4) assure that agencies contribute to the protection of non-federally owned resources which may be affected by agency activities at the discretion of the public land holder. Section 2(b) of Executive Order 11593 specifically requires agencies to assure that cultural resources which might qualify for nomination to the National Register be protected.

Public Law 89-665, the National Historic Preservation Act of 1966 (as amended), requires that the project effect on significant historic properties be evaluated and reviewed prior to the expenditure of any federal funds or the issuance of any license or permit for an undertaking. The law provides for the development and/or maintenance of the Advisory Council on Historic Preservation, the State Historic Preservation Office, and the National Register of Historic Places to regulate environmental review (the Section 106 process) and to standardize significance assessments of historic properties. The 36 CFR 800 regulations were developed to implement the review for potential effects of an undertaking on significant historic properties.

The in-place preservation of historic properties is nearly always preferable to data recovery where avoidance is possible. Where it is not, however, cultural resources must be evaluated for potential significance as defined by criteria for eligibility for listing in the National Register (36 CFR 60). If properties are determined eligible under criterion 36 CFR 60.4(d), data from these eligible sites must be documented in order to mitigate the adverse effects of whatever agency activity is threatening them. Archaeological documentation programs normally include data recovery fieldwork, data analysis and synthesis, report preparation and dissemination, and curation.

Public Law 93-291, the Archaeological and Historical Preservation Act of 1974, also mandates consideration of cultural resources. Section 3 of the law indicates that where cultural resources are in danger of irreparable loss or destruction, the agency may undertake recovery, protection, or preservation of the data. Public Law 93-291 also authorizes the funding of such data recovery activities.

How does all of this relate to the current project? As noted in Section 1.2, Project Background, management of cultural resources in the Painted Rock area has been an ongoing and evolving process for over 30 years. During that time archaeological research standards have changed and new laws have been enacted. The original aim of the Phase I investigations, as begun by Teague and Baldwin (1978) and completed herein, was to compile a sample inventory of sites from the reservoir area. This spatial 10% sample was intended to provide the basis for a research design applicable to a much more comprehensive, problem-oriented survey of the reservoir. This comprehensive survey, then, would have satisfied the mandate to the Corps of Engineers (as lead agency) to inventory cultural properties as described by Executive Order 11593. It could eventually have been used as a management tool for preservation planning purposes, especially in developing appropriate historic contexts, establishing research priorities, and determining which sites were in need of data recovery within the context of an overall research plan.

A comprehensive survey of cultural resources in the reservoir area clearly is still desirable. However, the reality of the situation as it exists in 1986 must be considered. In fact, numerous areas of the reservoir basin have already been inundated because of altered release schedules. This inundation has unquestionably resulted in the destruction of an unknown number of cultural resources. In addition, it has rendered portions of the reservoir basin virtually inaccessible due to tamarisk invasion. It is our recommendation, therefore, that the Corps take a realistic approach to the problem and sponsor additional survey and data recovery efforts only in those areas of the basin where it is practical in terms of survey efficiency and resource integrity.

4.3.2 Specific Recommendations for Future Investigations

Generally, survey below 649 feet is no longer practical at least where tamarisk stands have matured, but survey above 649 feet is quite feasible. Additional testing and evaluation work, however, is still possible below 649 feet. As demonstrated by Bruder and Spain (1986), it was generally possible to work along the northern edge of the reservoir within site PRS-16, Rock City. Here the tamarisk is fairly immature. Although forward visibility is limited, the ground surface is generally unobscured. There were no problems with conducting excavations in this area.

Survey in such an area is impractical to varying degrees depending on proximity to established landmarks within the dense growth. Sites and features can be observed with little difficulty, but locating them on a map with any accuracy is virtually impossible. Unfortunately, what this means is that, interesting and enigmatic as the generally small and scattered rock features may be, it would be exceedingly difficult to conduct a survey to locate similar properties below 649 feet. The same is true for additional evidence of ground stone manufacture below 649 feet. An exception to this would be within the context of a mapped site such as PRS-16. There is no reason, however, why successfully relocated properties that are in good condition, such as sites PRS-13, PRS-18, or sites LBF-1, LBF-2, LBF-4, and LBF-5 cannot be productively investigated.

Known sites located between 649 feet and 661 feet whose information potential has not already been exhausted obviously should be treated as soon as possible. These sites, which include PRS-1, PRS-2, PRS-8, PRS-12, and CBB-1, are in immediate danger of inundation with some attendant loss of information content probable.

It is difficult to know what to recommend for inundated sites judged to be in fair to poor condition. These properties include sites PRS-3, PRS-4, PRS-5, PRS-14, PRS-24, PRS-27, and LBF-3. All are interpreted as Hohokam and/or Patayan habitation sites and as such could contain extremely important information as discussed below. All have been reclaimed for modern agricultural purposes, and this process has considerably reduced surface site indications.

In some portions of southern Arizona and elsewhere in the United States, it is known that cultivation is not particularly destructive to cultural resources. In the Salt River Valley near Phoenix, for example, intact cultural deposits are commonly found below the plow zone. It is conceivable that this could also be the case in the reservoir area. However, the loss of surface artifact distribution is disturbing and dissimilar to the cases near Phoenix where abundant surface artifacts can sometimes be observed in cultivated fields.

In these situations, subsurface sampling strategies, usually involving backhoe trenching, can be designed to test areas with recorded high surface artifact densities. At the cultivated reservoir sites, however, it would be virtually impossible to determine where subsurface tests would be most profitable since few surface artifacts are observable today. Thus, a search for intact subsurface deposits would likely be extremely expensive. Limited exploratory testing would almost certainly be inconclusive within these large site areas since, if nothing was found, it might mean only that trenches had been inappropriately placed. Therefore, despite the possibility that these large, cultivated site areas may still contain significant data, they should probably only be accorded low priority. Sites PRS-4 and PRS-5 also should be considered low priority sites. Both are small artifact scatters, possibly in disturbed contexts due to inundation.

As discussed above, we feel that it would be a waste of time to continue attempts at relocating isolated rock features and small lithic scatters in the dense tamarisk zone. Further field efforts for sites PRS-6, PRS-17, PRS-20, PRS-21, PRS-25, PRS-26, PRS-29, and PRS-30 should be discontinued. Unfortunately, a similar recommendation seems warranted for sites PRS-6, PRS-9, and PRS-10. These are reported as large possible habitation sites, but none were successfully relocated by the 1986 survey effort. In addition, information content at a few sites has been exhausted by the 1986 field investigations. These are sites PRS-15, PRS-22, PRS-23, and PRS-28 (which is no longer extant). A determination of eligibility for the National Register of Historic Places (NRHP) would not be appropriate for these sites.

4.3.3 Research Potential

A specific consideration of the research potential remaining in the reservoir area is well beyond the scope of this project. However, a few

comments may be appropriate. The Patayan culture is very poorly understood because only a few sites attributable to it ever having been excavated. Likewise, the relationship between the Hohokam and the Patayan cultures is an enigma although recent evidence from the site of Los Colinas in the Salt River Valley indicates that a Patayan enclave actually existed within the confines of this very large Hohokam site (Dave Gregory, personal communication 1986). Recent intriguing information from the Akchin Papago Reservation also hints at a possible relationship between protohistoric Piman speakers and the protohistoric Patayan (Bruce Masse, personal communication 1986).

The Gila Bend region is perhaps the best laboratory in which to explore questions concerning the Patayan culture and its relationship to the Hohokam and possibly to the protohistoric descendants of both groups as well. To date, excavations, some of them merely limited test excavations, have been conducted at about 15 sites in the Gila Bend region (Wasley 1960; Wasley and Johnson 1965; Greenleaf 1975; Teague 1981; Bruder and Spain 1986). Only three of these are identified by their investigators as Patayan, and none of these are habitation sites. Yet the results of the present survey suggest that numerous large, probable village sites may contain Patayan materials; some of these sites evidence Patayan/Hohokam admixture; others seem to be primarily Patayan. It would be of unquestionable value if some of these sites were intensively investigated.

Also present in the Gila Bend area are at least several extensive petroglyph sites as described by Wasley and Johnson (1965), Green (1985), and the present survey. To date none of these sites have been seriously investigated or even described in detail. Several recent projects (e.g., Ferg 1979; Bruder 1983; Wallace and Holmlund 1986) demonstrate that thorough recording coupled with an explicit research orientation at rock art sites can contribute to our understanding of prehistory. Such an undertaking certainly is needed in the Gila Bend area. Site PRS-12 would be a good place to start.

4.3.4 Conclusions

Table 6 outlines the management recommendations discussed above. In summary, we feel that 13 sites warrant further investigation to determine their possible significance as a high priority. Four additional sites are accorded low priority status for future investigations. We suggest that 10 sites be essentially "written off" due to their inaccessibility and probable loss of information content if indeed they are still extant. A determination of eligibility for NRHP listing is not recommended for four of the sites investigated by this project since their information content has been exhausted. Finally, we feel that it would be reasonable at this time to request a determination of eligibility for site PRS-12, the extensive petroglyph site, from the Arizona State Historic Preservation Office.

In addition, we recommend that the Corps of Engineers sponsor additional, problem-oriented surveys in the reservoir area as originally envisioned by Vogler (1976) and Teague and Baldwin (1978). This survey should be restricted to those areas where access and survey is reasonably practical and where the contextual integrity of the resource is likely to be intact, i.e., especially areas above 649 feet in elevation.

TABLE 6
SUMMARY OF MANAGEMENT RECOMMENDATIONS

SITE	ASN No.	RECOMMENDATIONS	PRIORITY
PRS-1	Z:2:12	Test to determine significance	High
PRS-2	Z:2:13	Test to determine significance	High
PRS-3	Z:2:2	Possibly test to determine significance	Low
PRS-4	Z:2:14	Possibly test to determine significance	Low
PRS-5	Z:2:15	Possibly test to determine significance	Low
PRS-6	Z:2:3	Discount due to location	
PRS-7	Z:1:19	Investigate to determine significance	High
PRS-8	T:13:50	Investigate to determine significance	Low
PRS-9	T:13:51	Discount due to location	
PRS-10	Z:1:11/12	Discount due to location	
PRS-11	Z:1:18	Discount due to location	
PRS-12	Z:14:8	Obtain determination of eligibility and initiate data recovery	High
PRS-13	T:14:10	Test to determine significance	High
PRS-14	T:14:32	Possibly test to determine significance	Low
PRS-15	T:13:49	Determination of not eligible for NRHP	
PRS-16	T:13:22	Investigate ground stone manufacturing evidence to determine significance	High
PRS-17	T:13:35	Discount due to location	
PRS-18	T:13:36	Investigate to determine significance	High
PRS-19	T:13:37	Investigate to determine significance	
PRS-20	T:13:38	Discount due to location	
PRS-21	T:13:41	Discount due to location	
PRS-22	T:13:30	Determination of not eligible for NRHP	

TABLE 6 (continued)
SUMMARY OF MANAGEMENT RECOMMENDATIONS

SITE	ASN No.	RECOMMENDATIONS	PRIORITY
PRS-23	T:13:31	Determination of not eligible for NRHP	
PRS-24	Z:1:8	Possibly test to determine significance	Low
PRS-25	T:13:42	Discount due to location	
PRS-26	T:13:43	Discount due to location	
PRS-27	Z:13:44	Possibly test to determine significance	Low
PRS-28	Z:1:17	Determination of not eligible for NRHP	
PRS-29	T:13:45	Discount due to location	
PRS-30	T:13:46	Discount due to location	
LBF-1	T:13:39	Test to determine significance	High
LBF-2	Z:1:16	Investigate to determine significance	High
LBF-3	T:13:48	Test to determine significance	High
LBF-4	Z:1:15	Investigate to determine significance	High
LBF-5	T:13:40	Investigate to determine significance	High
CBB-1	T:13:47	Investigate to determine significance	High

At the initiation of this project, the Corps had requested that we evaluate the potential eligibility of the entire reservoir area for listing as a National Register district. For most of the properties inventoried, however, sufficient information has not yet been documented either to assign the sites to a specific historic context, or to understand the range, frequency, and condition of property types available for the historic context. First, not enough of the reservoir area has been systematically inventoried to modern research standards. Second, a number of the known sites in the area, especially those investigated by Wasley and Johnson in the early 1960s, and which would make up part of the district, have not been revisited to determine what effect inundation may have had on them. Finally, the results of surface recording at the probable habitation sites found by the 1978 sample survey are not definitive enough to warrant a determination of their eligibility. Indeed, that is why a testing program at these sites is recommended so that their significance and potential to contain intact subsurface deposits can be assessed.

It is recommended that the Corps proceed with historic property investigations along two management schemes. The first is to continue problem-oriented survey and site recordation above 649 feet elevation to identify the range of property types, and their frequency, within the reservoir. The second is to proceed with testing and evaluation activities at sites already identified whose information potential has not been exhausted. It is clear from the current study that the rock feature property type has been severely impacted by inundation activities. In the prioritization of property types to be subject to further fieldwork for evaluation and documentation of National Register status, the Corps must consider attrition to a major portion of the data base as well as representativeness of property types, and the information potential at each site.

For small sites or limited-use sites, it may be possible to exhaust the research information potential during recordation. This strategy would require the development of an historic preservation plan for the reservoir with research priorities established within historic contexts. A uniform approach to the study of cultural resources would, therefore, be adopted.

At more substantial sites, such as potential habitation sites with probable subsurface components, a similar uniform research strategy is suggested. That is, the sites should be tested to determine whether they do, in fact, contain intact subsurface deposits, and whether they appear to have the potential to provide information relevant to defined research priorities within various historic contexts. In cases such as these, determination of eligibility for listing in the National Register is made by the Corps and presented to the State Historic Preservation Officer for review and concurrence.

To conclude, an investigation of the archaeology in the Painted Rock Reservoir area has the considerable potential to enlarge current understanding of at least two major prehistoric cultures and very possibly of the understanding of their protohistoric descendants as well. It also may contribute information about little known Archaic or even earlier cultures (Bruder and Spain 1986). The Corps of Engineers, as lead agency

for the Bureau of Land Management and the Bureau of Indian Affairs who also control land in the area, has the responsibility to continue to identify and evaluate historic properties in the reservoir area, and to mitigate the adverse effects of inundation and other agents on those resources which are considered significant. From a practical standpoint, additional surveys can best be accomplished in areas above the current high water line. However, site recording, artifact collections, test excavations, and full scale mitigation through data recovery and documentation still are possible at sites both above and below 649 feet, at least in certain portions of the reservoir.

Research potential in the reservoir will be continually degraded with each additional inundation episode. As the invasive tamarisk matures, ever increasing portions of the reservoir will become more and more inaccessible and, in fact, impenetrable. As discussed above, the Corps has a Federal mandate to attempt to mitigate these adverse effects on significant historic properties. We recommend that this can best be accomplished by initiating systematic survey and full-scale data recovery in order to recover a representative sample of material from the reservoir area adequate for addressing a wide range of currently pressing research concerns. An ambitious investigative effort such as we envision will best be accomplished as an integrated effort governed by a comprehensive research design (historic preservation plan) which takes as its starting point information provided by this Phase I effort, but which is flexible enough to incorporate divergent data as the research progresses.

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We would also like to acknowledge the many people who contributed to the analysis or identification of data classes within the collected assemblage. Lower Colorado Buffware ceramics were typed by Michael R. Waters. A.E. Dittert, Jr. also examined several sherds. Shell identifications were made by Ann Valdo Howard, and lithic raw materials were identified by Barbara Murphy. The single historical item in the assemblage was examined by Jim Ayers.

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6.0 REFERENCES CITED

- Brew, Susan A.
1981 AZ S:13:36. In Test Excavations at Painted Rock Reservoir: Sites AZ Z:1:7, AZ Z:1:8, and AZ S:16:36, edited by Lynn S. Teague, pp. 36-42. Archaeological Series 143, Arizona State Museum, Tucson.
- Bruder, J. Simon
1975 Historic Papago Archaeology. In Hecla II and III: An Interpretive Study of Archaeological Remains from the Lakeshore Project, Papago Reservation, South Central Arizona, by Albert C. Goodyear III, pp. 271-337. Arizona State University Anthropological Research Paper 9, Tempe.
1977 Changing Patterns in Papago Subsistence Strategies: Archaeology and Ethnohistory Compared. The Kiva, 42:3-4:233-256, Tucson.
1982 Prehistoric Settlement and Subsistence Strategies in the Carefree Area, South Central Arizona. Unpublished Ph.D. dissertation, Department of Anthropology, Arizona State University, Tempe.
1983a Archaeological Investigations at the Hedgepeth Hills Petroglyph Site. Museum of Northern Arizona Research Paper 28, Flagstaff.
- Bruder, J. Simon and James N. Spain
1986 Cultural Resource Investigations at Painted Rock Reservoir: Monitoring, Phase I, Maricopa County, Arizona. Harmsworth Associates Archaeological Research Paper 1, Laguna Hills, CA.
- Colton
1941 Winona and Ridge Ruin, Part II, Notes on the Technology and Taxonomy of the Pottery. Museum of Northern Arizona Bulletin 19, Flagstaff.
- Dorn, Ronald I.
1983 Cation-Ratio Dating: A New Rock Varnish Age-Determination Technique. Quaternary Research.
- Ferg, Alan
1979 The Petroglyphs of Tumamoc Hill. The Kiva 45:1-2:95-118, Tucson.
- Fontana, Bernard L., William J. Robinson, Charles W. Cormack and Ernest E. Leavitt, Jr.
1962 Papago Indian Pottery. University of Washington Press, Seattle.
- Gladwin, Harold S. and Winifred Gladwin
1930 The Western Range of Red-on-Buff Culture. Medallion Papers 5:135-161, Gila Pueblo, Globe.

- Good, Polly W.
 1976 Definition of Ceramic Types. In: Archaeological Survey in the Gila River Basin, New River and Phoenix City Streams, Arizona Project Area. Assembled by: A.E. Dittert, Jr. MS Department of Anthropology, Arizona State University (Tempe). pp 136-143.
- Greenleaf, J. Cameron
 1975 The Fortified Hill Site Near Gila Bend, Arizona. The Kiva 40:4:213-282.
- Haury, Emil W.
 1937 Pottery Types of Snaketown. In: Excavations at Snaketown, Material Culture, eds., H.S. Gladwin, E.W. Haury, E.B. Sayles, N. Gladwin. pp 169-229. Medallion Paper XXV, Globe.
 1976 The Hohokam, Desert Farmers and Craftsmen. University of Arizona Press, Tucson.
- Hayden, Julian
 1976 Pre-Altithermal Archaeology in the Sierra Pinacate, Sonora, Mexico. American Antiquity 41:3:174-289.
- Huckell, Bruce B.
 1979 The Coronet Real project: archaeological investigations on the Luke Range, southwestern Arizona. Arizona State Museum, Archaeological Series, 129, Tucson.
- McGuire, Randall H.
 1982a Ethnographic Studies. In Hohokam and Patayan, eds., R.H. McGuire and M.B. Schiffer, pp. 57-96. Academic Press, New York.
- Nelson, Richard S.
 1981 The Role of Puchtecha System in Hohokam Exchange. M.S. Doctoral Dissertation, Department of Anthropology, New York University, New York.
- Opfenring
 1965 The Herberger Site: A McDowell Mountain Hohokam Settlement. M.A. Thesis, Arizona State University, Tempe.
- Phillips, David A., and Kenneth Rozen
 1982 Effects of Inundation on Cultural Resources in Painted Rock Reservoir, Arizona: An Assessment. Archaeological Series 149, Arizona State Museum, Tucson.
- Rodgers, James B.
 1977 Archaeological Investigation of the Granite Reef Aqueduct, Cave Creek Archaeological District, Arizona. Arizona State University Anthropological Research Paper 12, Tempe.
- Rogers, Malcolm J.
 1929 The Stone Art of the San Diequito Plateau. American Anthropologist 31:454-467.

- 1939 Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas. San Diego Museum Paper 3, San Diego.
- 1958 San Diequito Implements from the Terraces of the Rincon, Pantano and Rillito Drainage System. The Kiva 24:1-23, Tucson.
- 1966 Ancient Hunters of the Far West. The Union-Tribune Publishing Co., San Diego.
- Rosenthal, Jane E., Douglas Brown, Marc Severson and John B. Clonts
1978 The Quijotoa Valley project, U.S. Department of the Interior, National Park Service, Tucson.
- Sayles, E.B.
1937 Stone: Implements and Bowls. In: Excavations at Snaketown, Material Culture, eds., H.S. Gladwin, E.W. Haury, E.B. Sayles, N. Gladwin. pp 169-229. Medallion Paper XXV, Globe.
- Schiffer, M.
1982 Hohokam Chronology: An Essay on History and Method. In Hohokam and Patayan, eds., R.H. McGuire and M.B. Schiffer, pp. 229-344. Academic Press, New York.
- Schroeder, Albert H.
1952 A Brief Survey of the Lower Colorado River from Davis Dam to the International Border. The Bureau of Reclamation, Reproduction Unit, Region Three, Boulder City.
- 1961 An Archaeological Survey of the Painted Rocks Reservoir, Western Arizona. The Kiva 27:1:1-28.
- Teague, Lynn S.
1981 Test Excavations at Painted Rock Reservoir: Sites AZ Z:1:7, AZ Z:1:8 and AZ S:16:36. Arizona State Museum Archaeological Series 143, Tucson.
- Teague, Lynn S. and Anne R. Baldwin
1978 Painted Rock Reservoir Project, Phase I: Preliminary Survey and Recommendations. Arizona State Museum Archaeological Series 126, Tucson.
- Vivian, R. Gwinn
1965 An Archaeological Survey of the Lower Gila River, Arizona. The Kiva 30:4:95-146, Tucson.
- Vogler, Lawrence
1976 Cultural Resources of Painted Rock Dam and Reservoir Preliminary Evaluation and Management Plan Recommendations. MS.

Volks

- 1983 Shell Inventory from the Salt-Gila Aqueduct Project Sites. In: Hohokam Archaeology Along the Salt-Gila Aqueduct, Central Arizona Projects Material Culture. Eds. L.S. Teague and P.L. Crown. pp 551-574. Arizona State Museum Archaeological Series 150, Tucson.
- Wallace, Henry D. and James P. Holmlund
1986 Petroglyphs of the Picacho Mountains, South Central Arizona, Institute for American Research, Anthropological Papers 6, Tucson.
- Warren, Claude N.
1967 The San Diequito Complex: A Review and Hypothesis. American Antiquity 32:2:168-185.
- Wasley, William W.
1960 A Hohokam Platform Mound at the Gatlin Site, Gila Bend, Arizona. American Antiquity 26:2:242-262.
- Wasley, William W., and Alfred E. Johnson
1965 Salvage Archaeology in Painted Rock Reservoir, Western Arizona. Anthropological Papers of the University of Arizona 9, Tucson.
- Waters, Michael R.
1982 The Lowland Patayan Ceramic Tradition. In Hohokam and Patayan, eds., R.H. McGuire and M.B. Schiffer, pp. 275-296. Academic Press, New York.
- Weaver, Donald E., Jr.
1974 Archaeological Investigations at the Westwing Site, AZ T:7:27 (ASU), Agua Fria River Valley, Arizona. Arizona State University Anthropological Research Paper, No. 7. Tempe.

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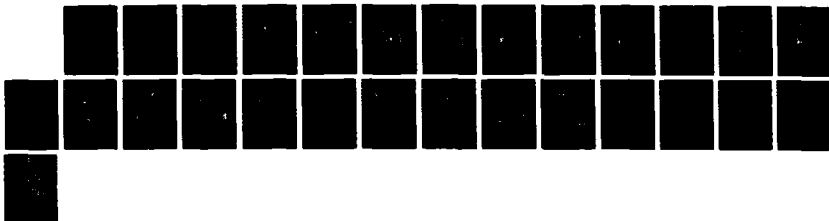
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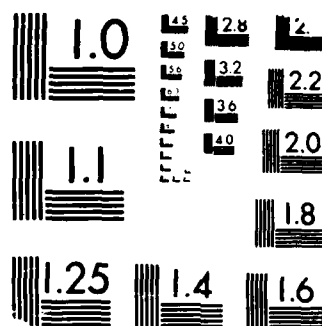
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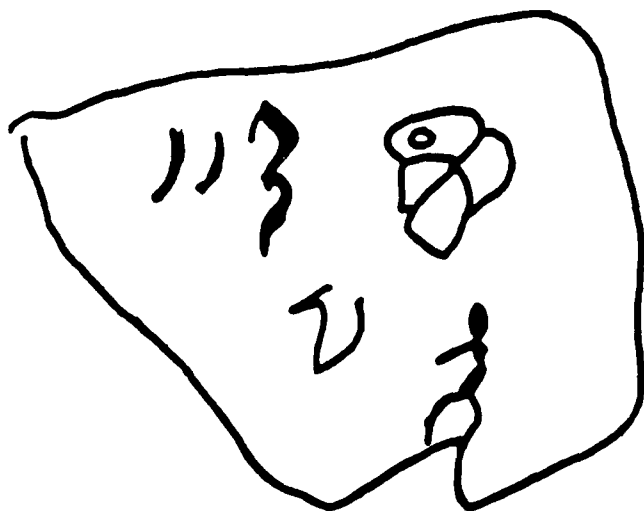
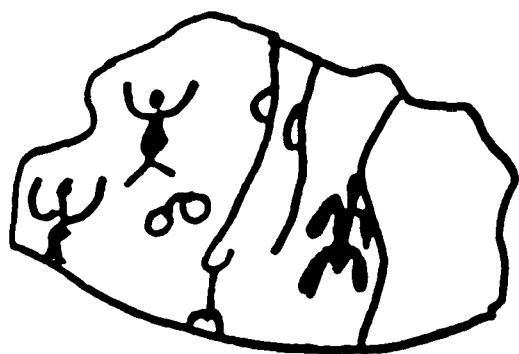


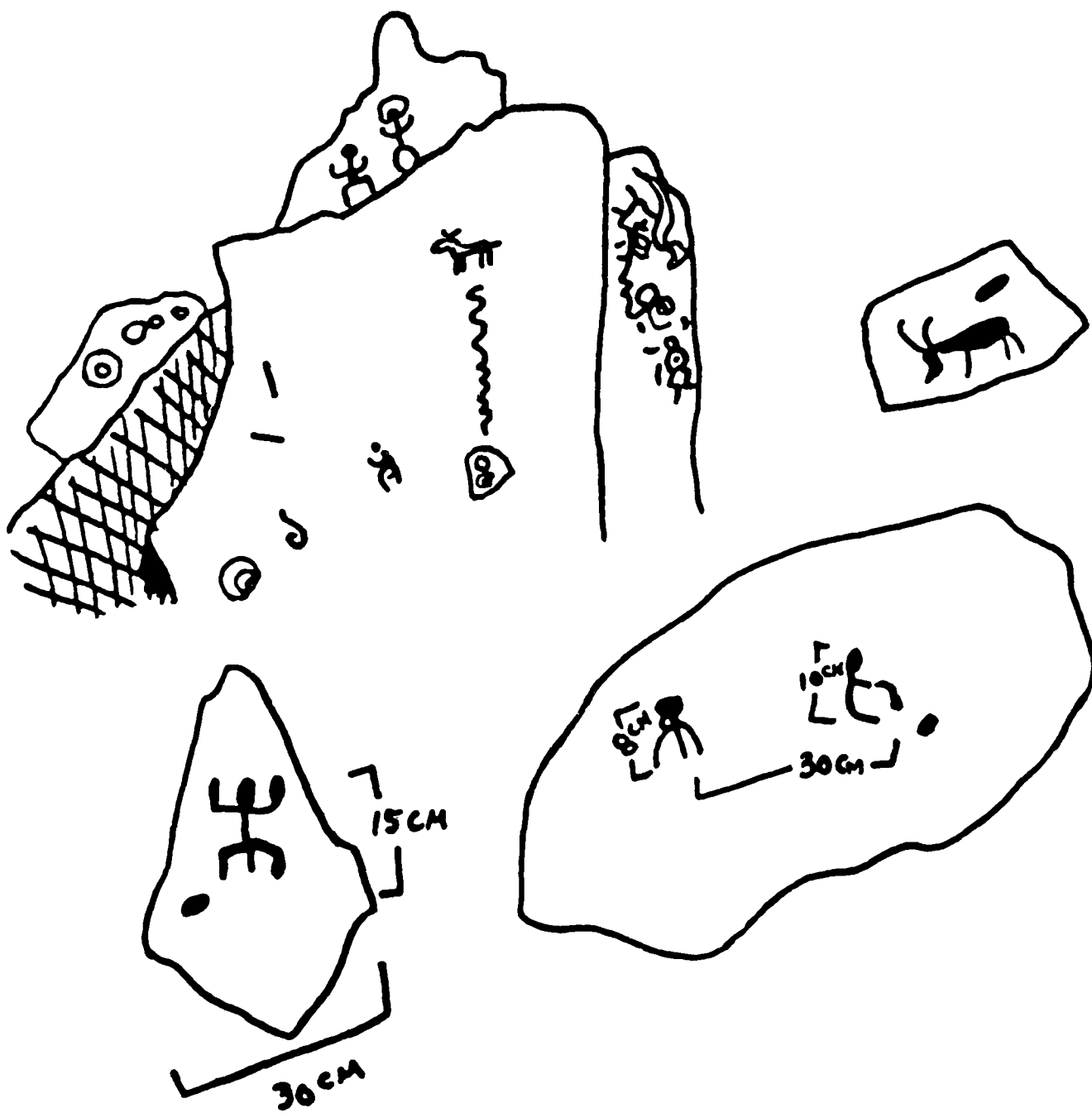
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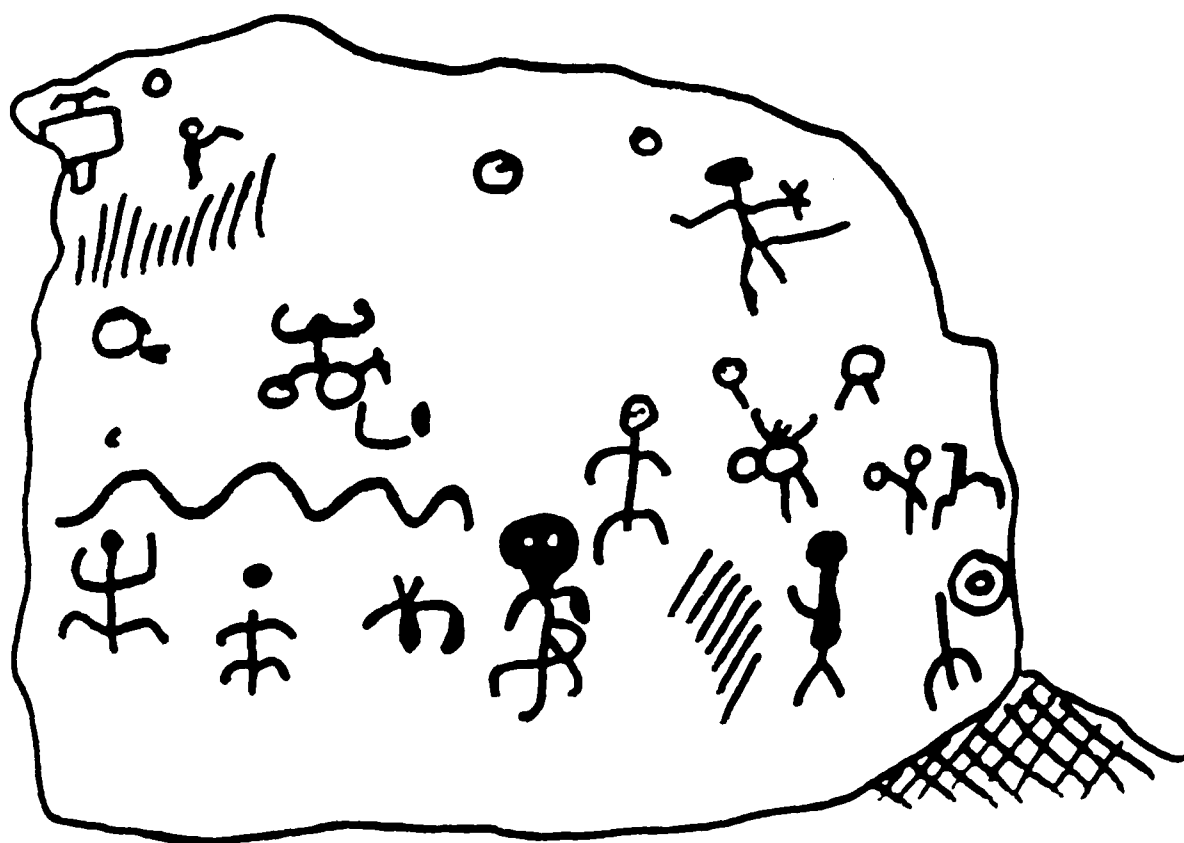
APPENDIX 2.
PETROGLYPHS FROM SITE PRS-12

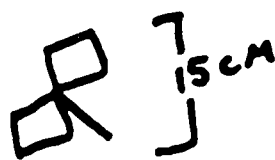
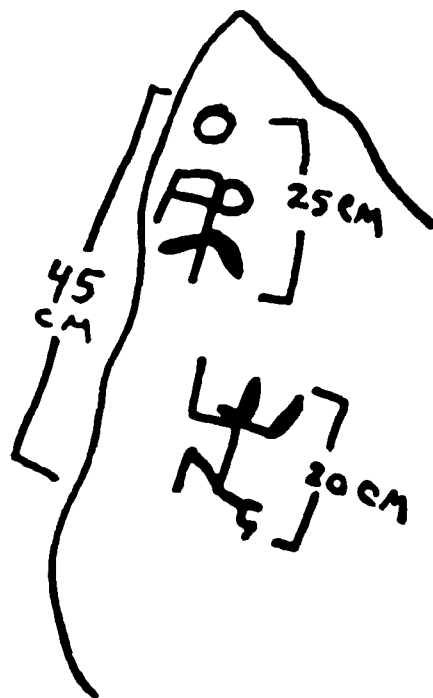
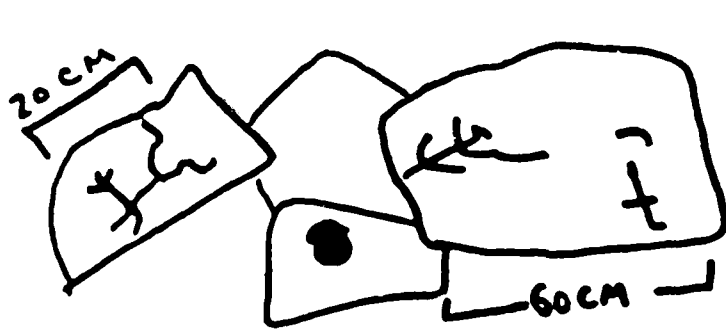


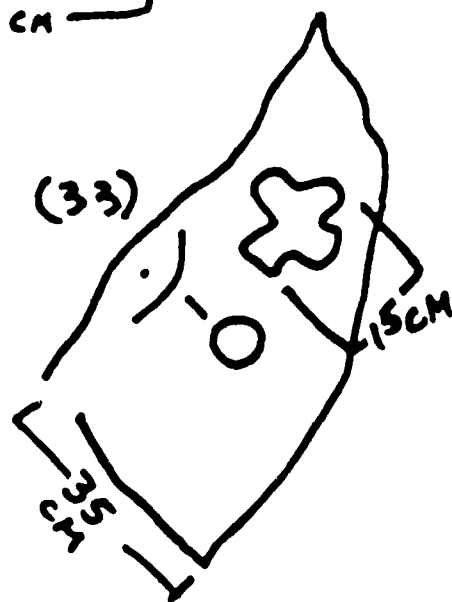
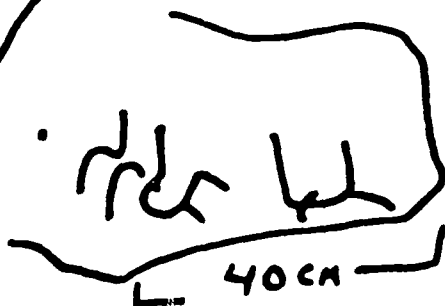
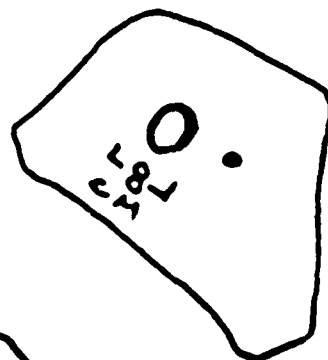
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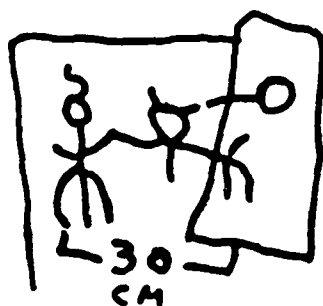
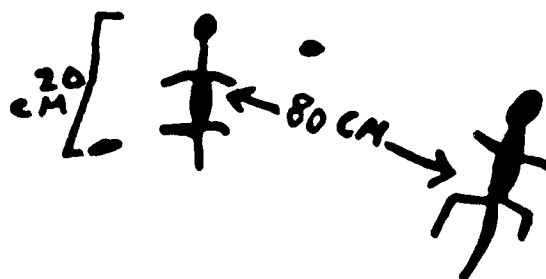
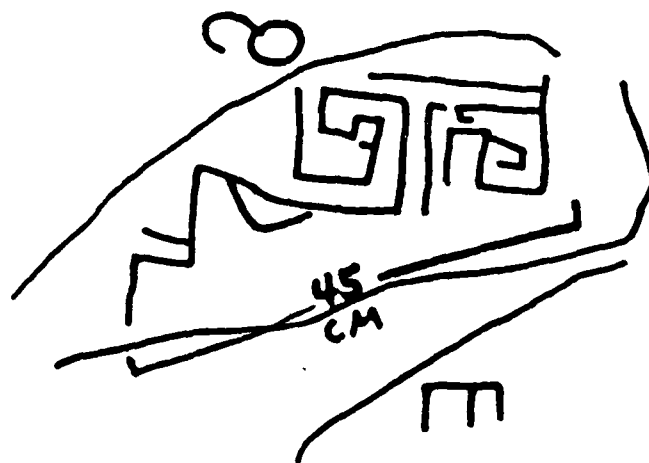


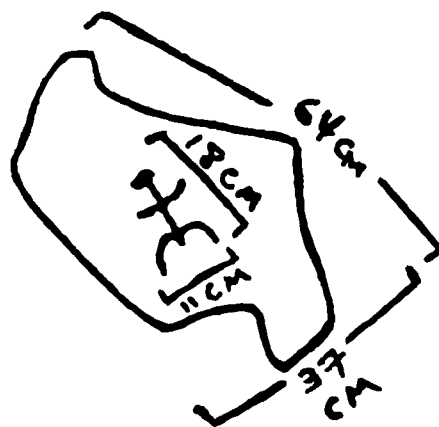
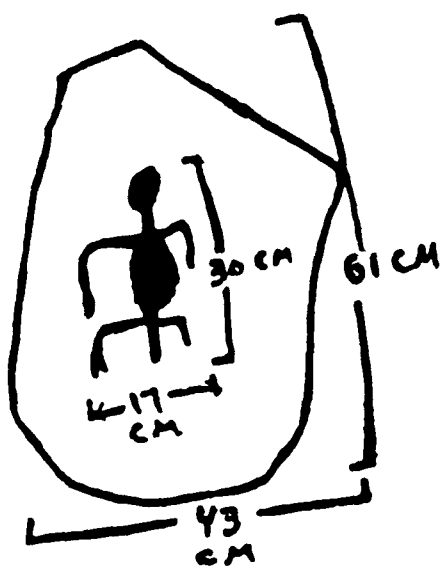
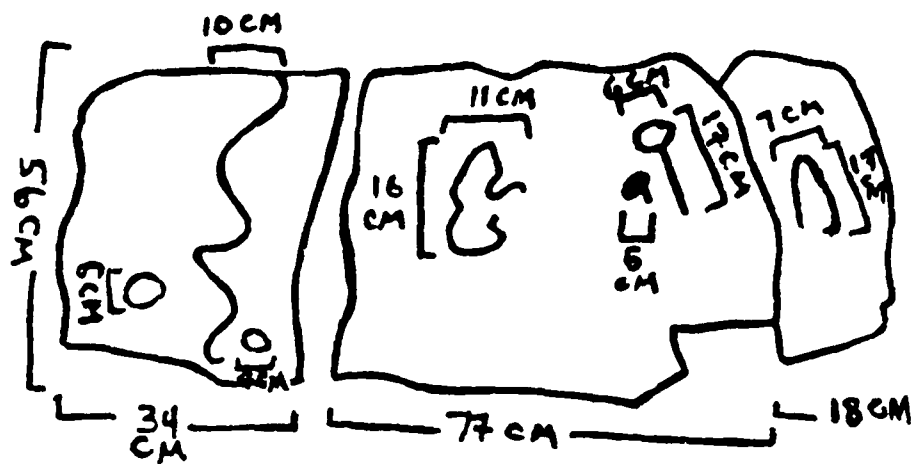


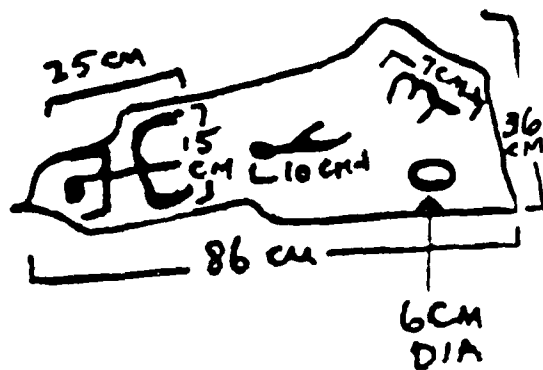
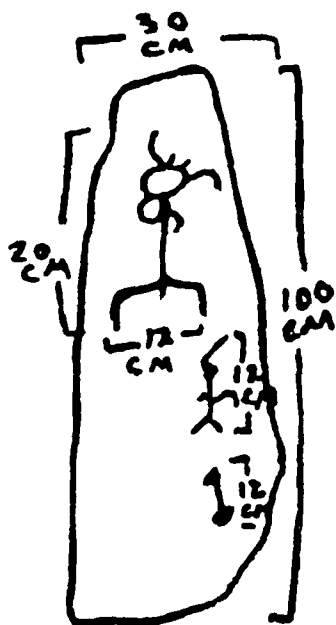


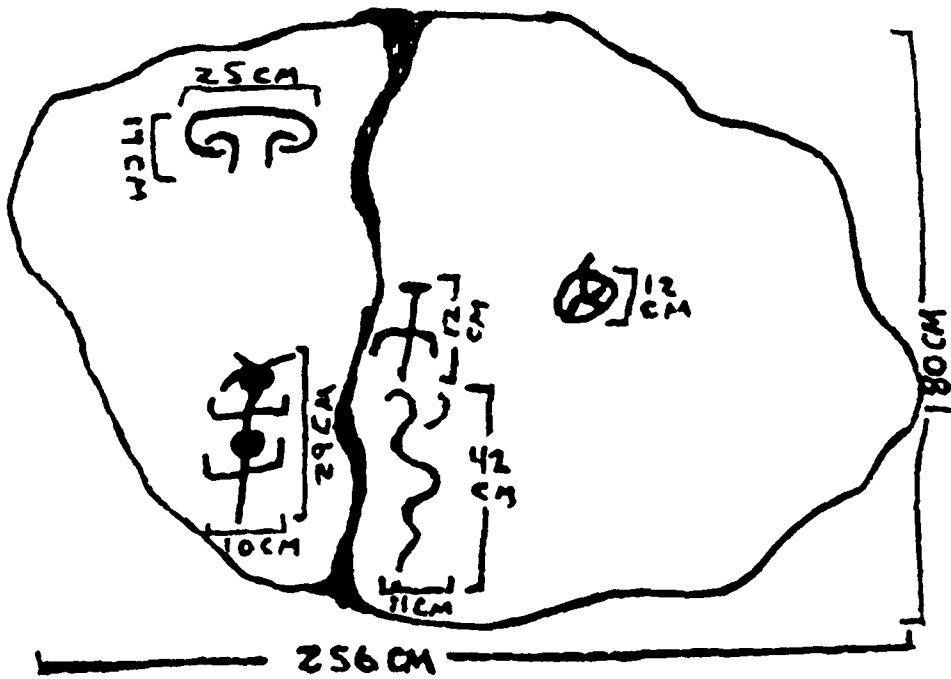
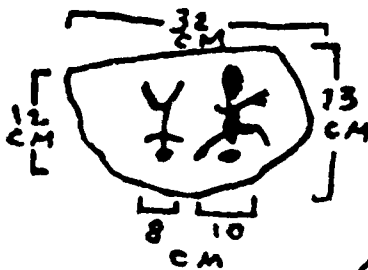
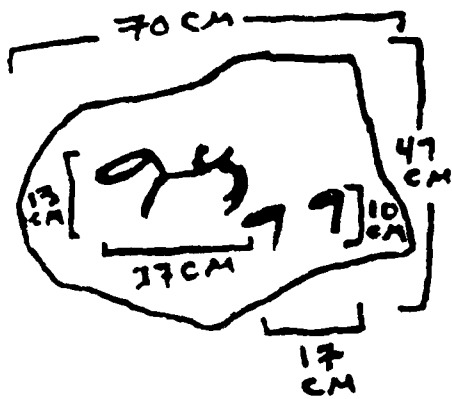


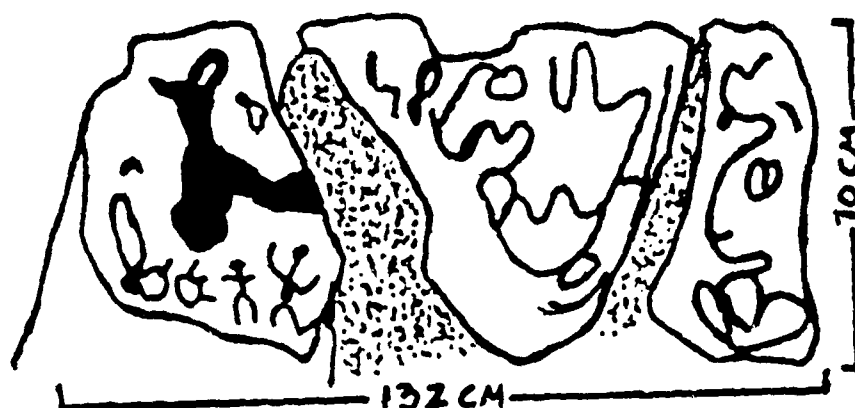
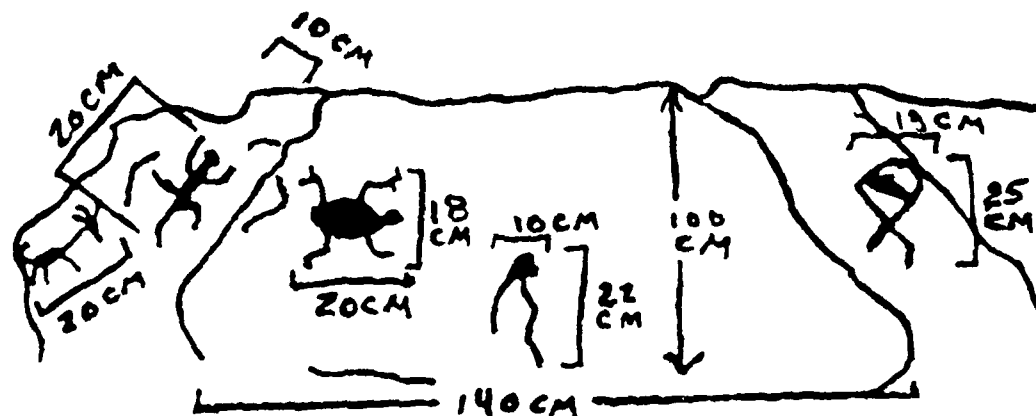


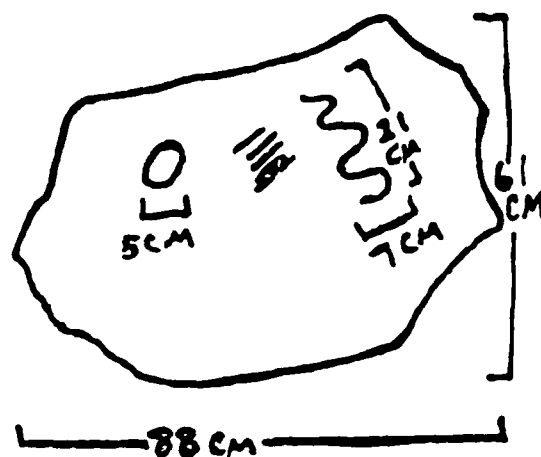
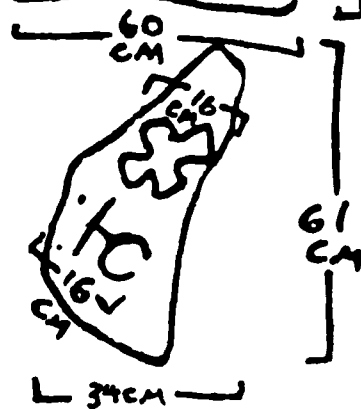
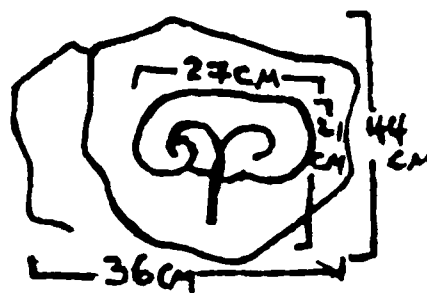


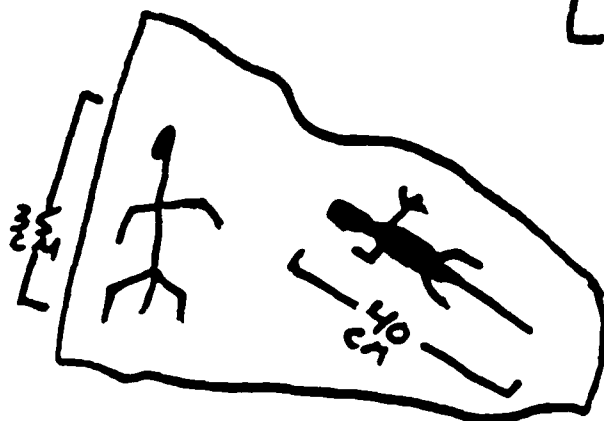


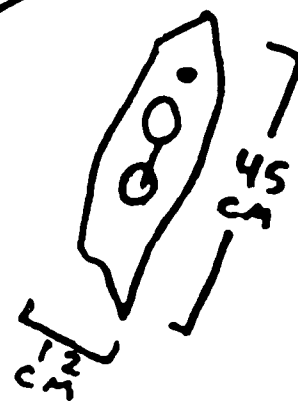
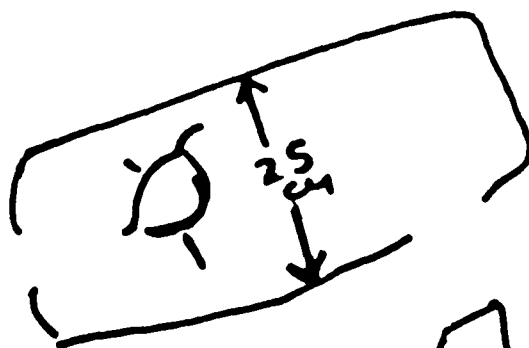
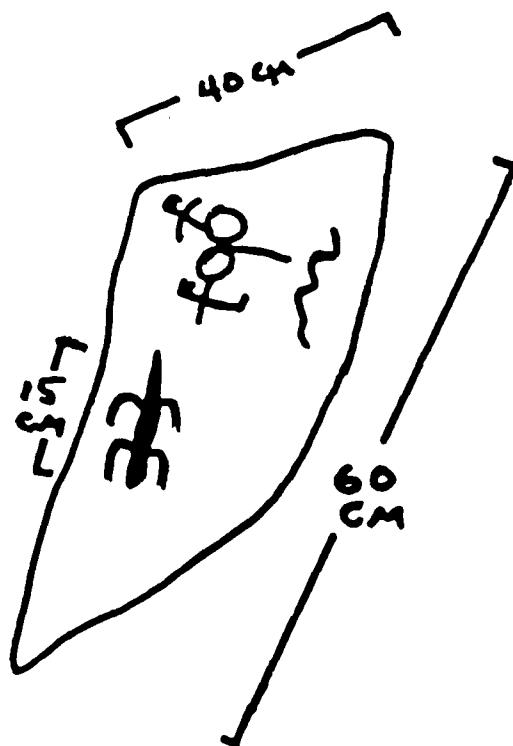


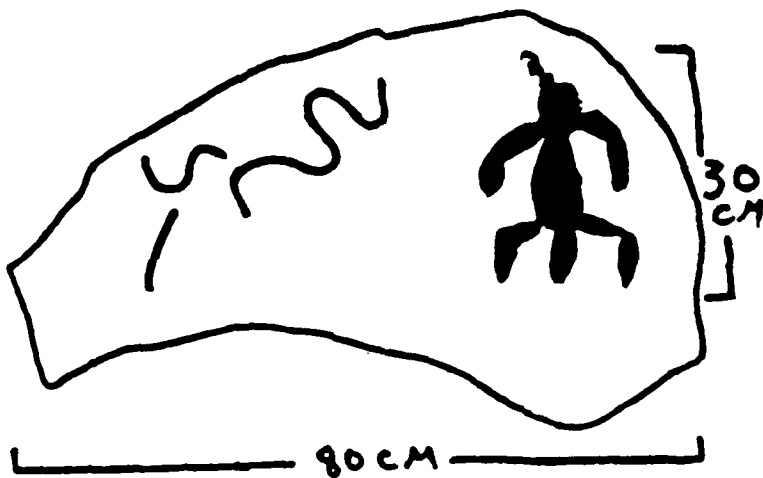
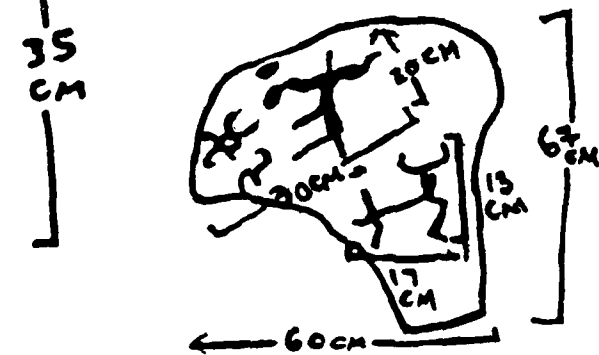
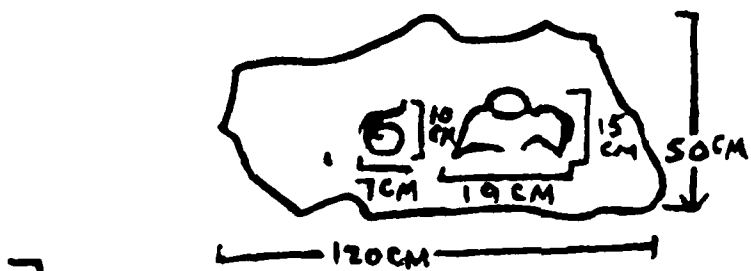
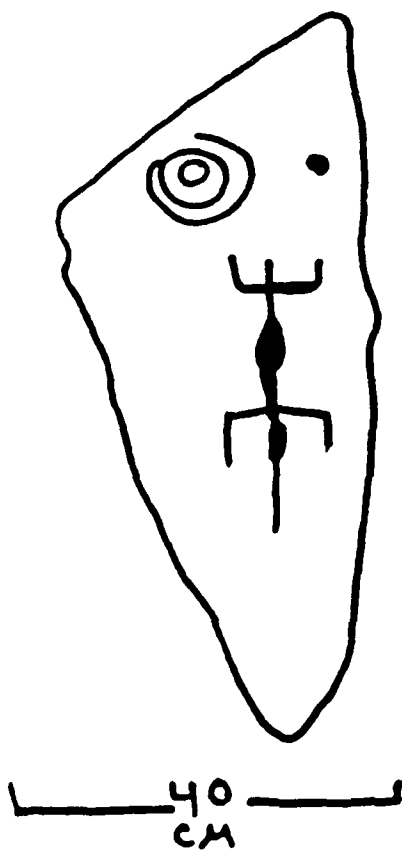


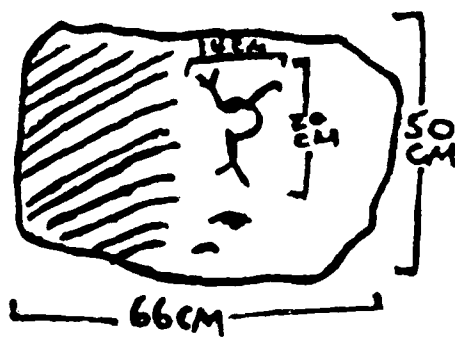
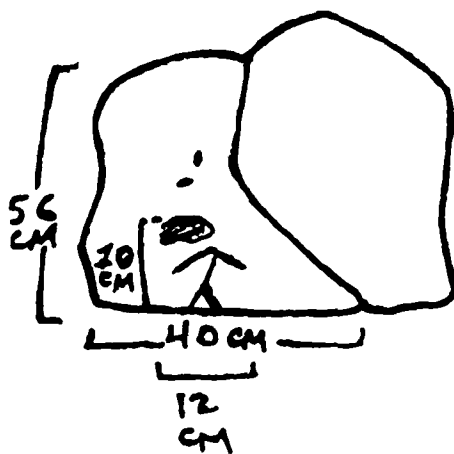


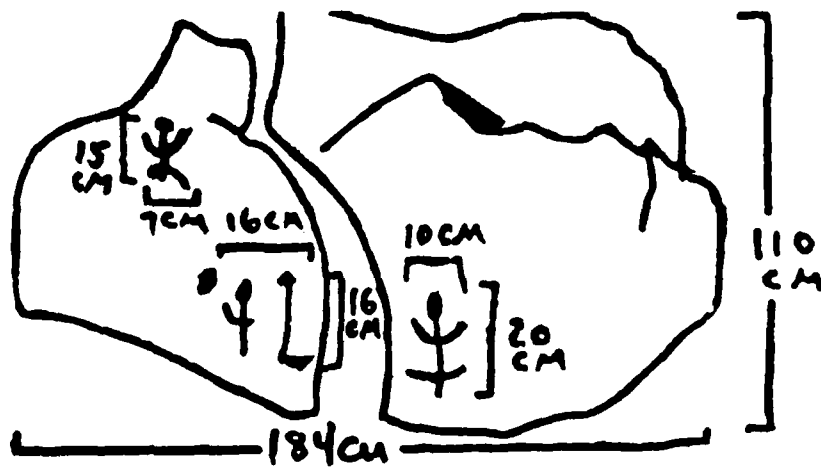
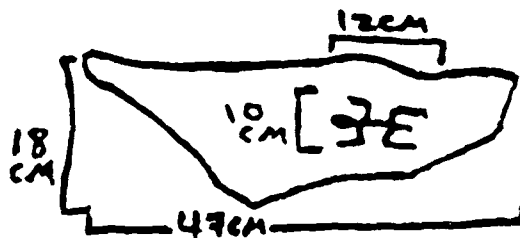
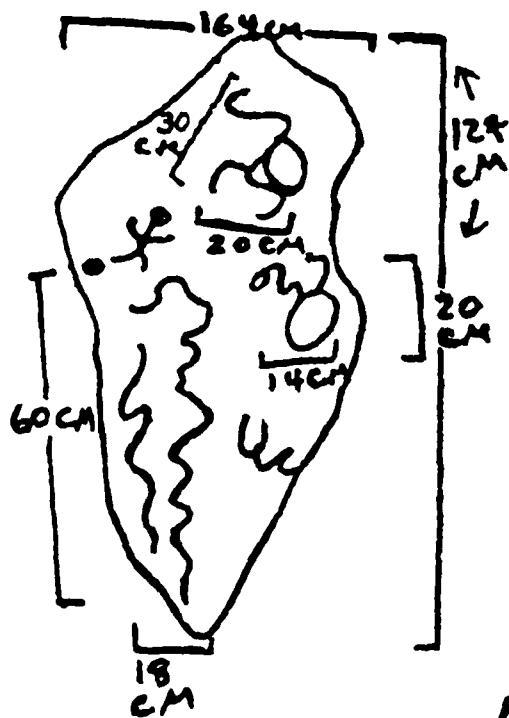


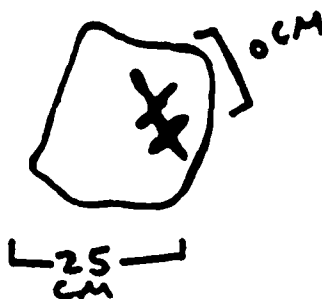
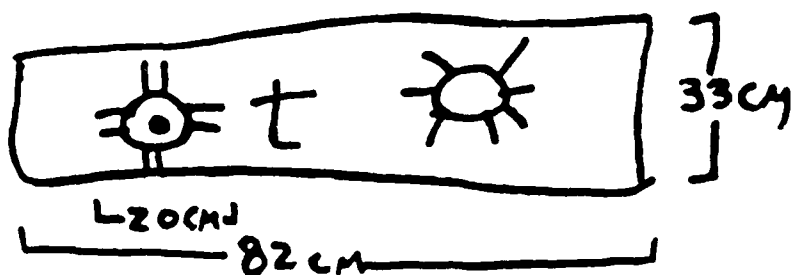
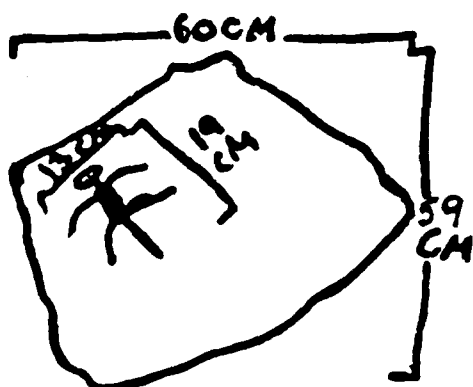


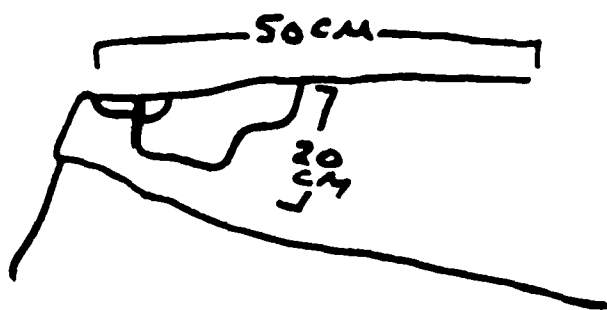
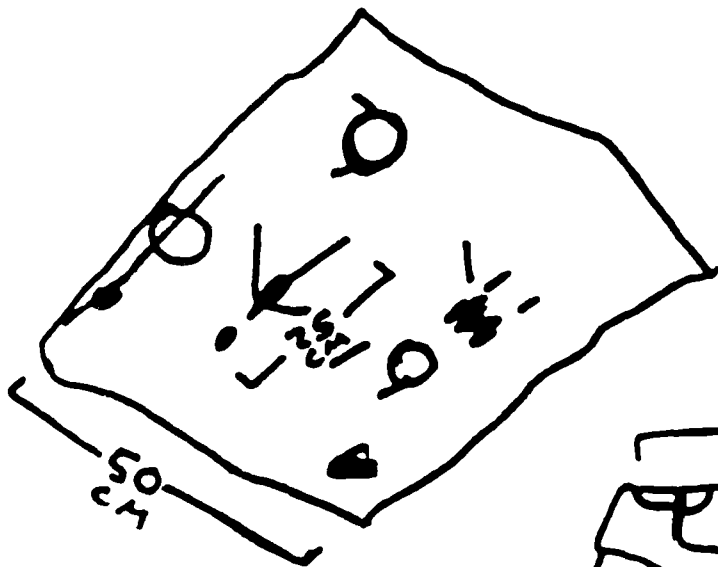


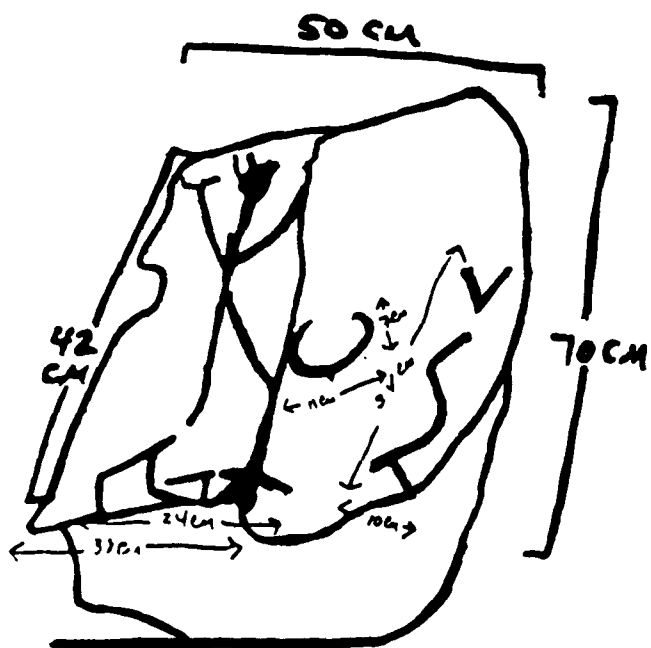
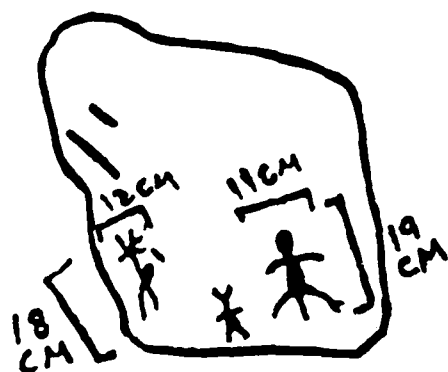


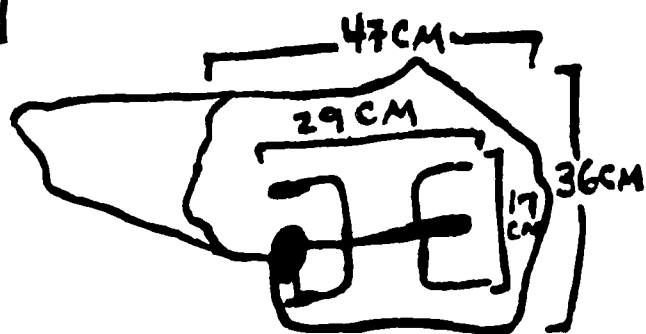
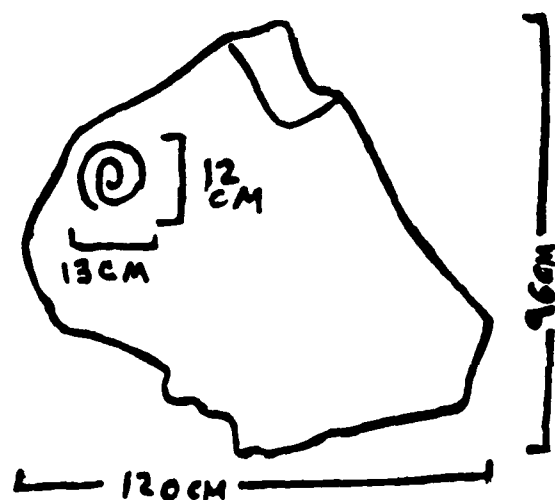
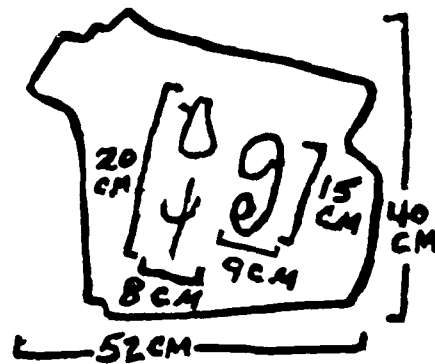
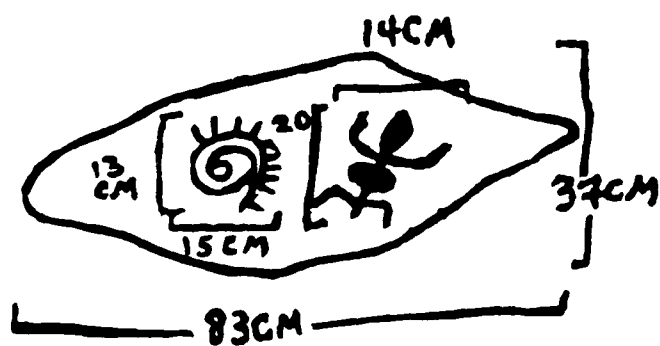


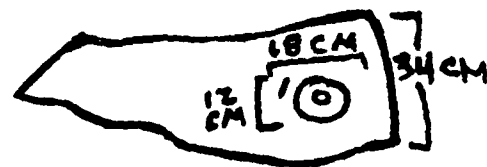
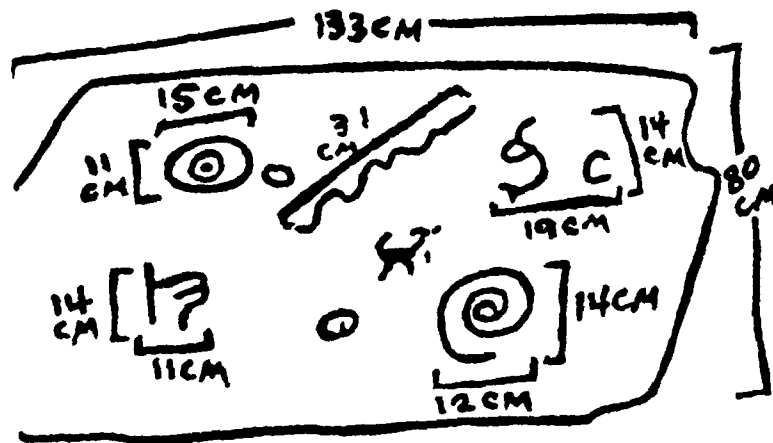




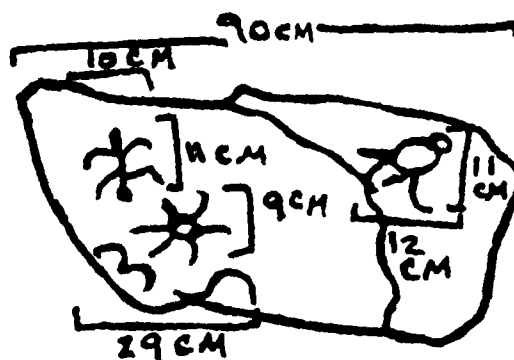
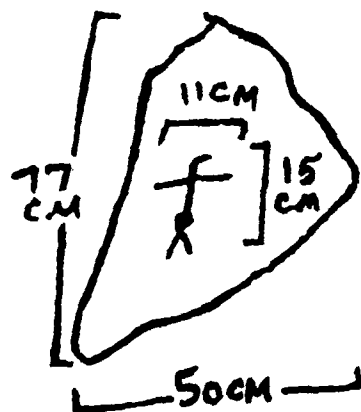


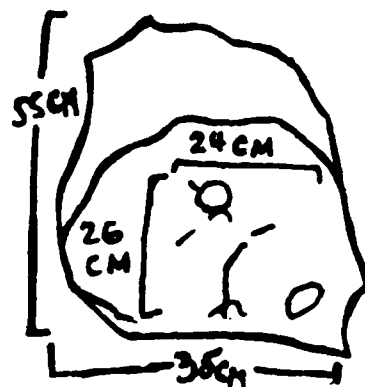
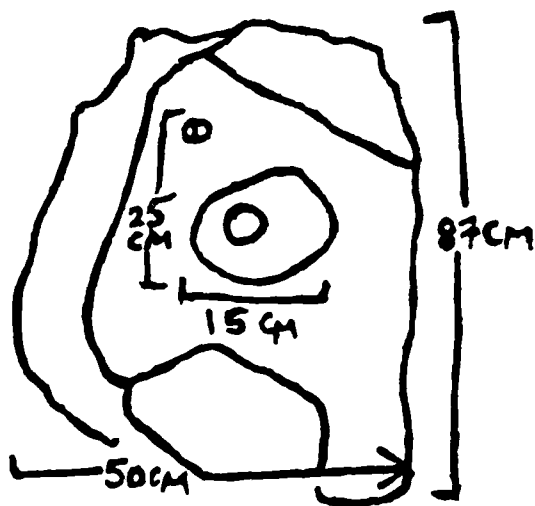
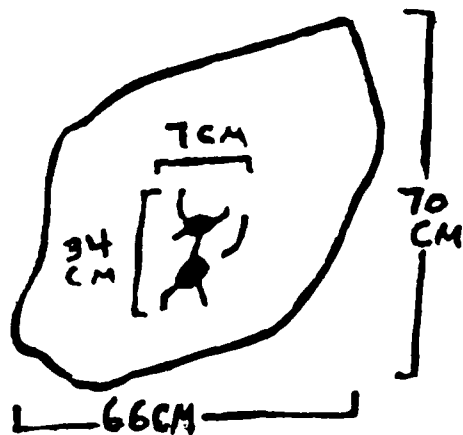
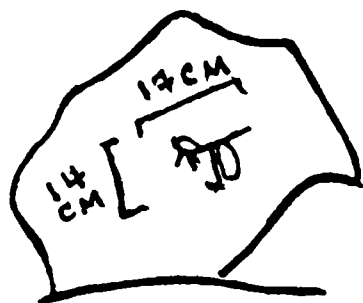


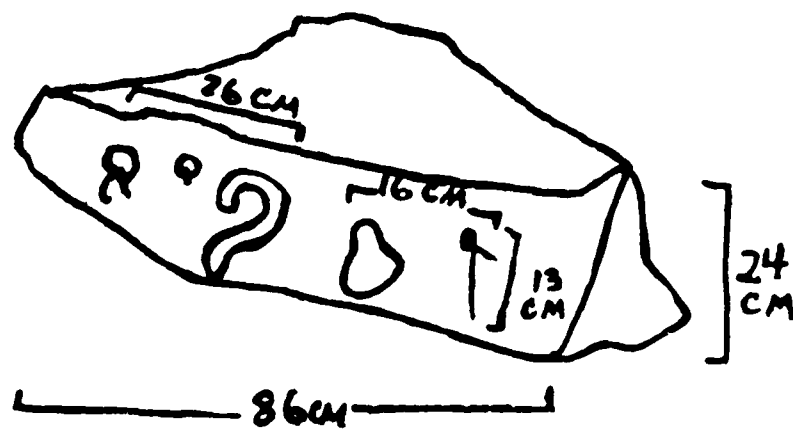
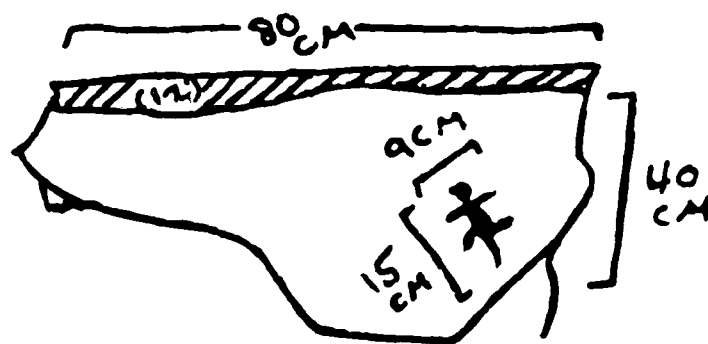
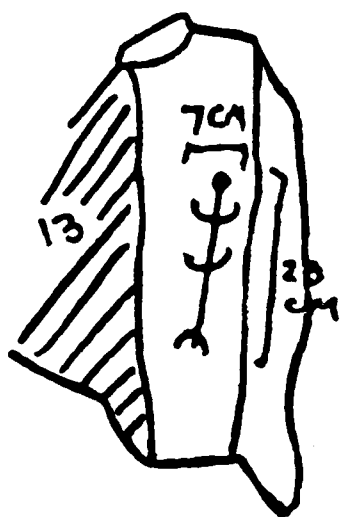




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